

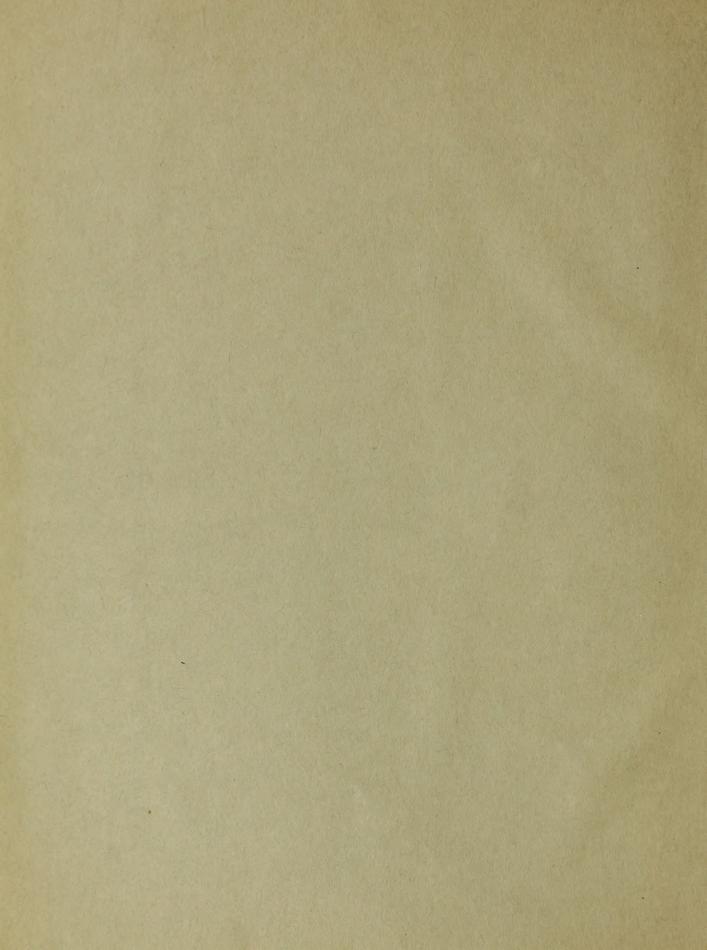
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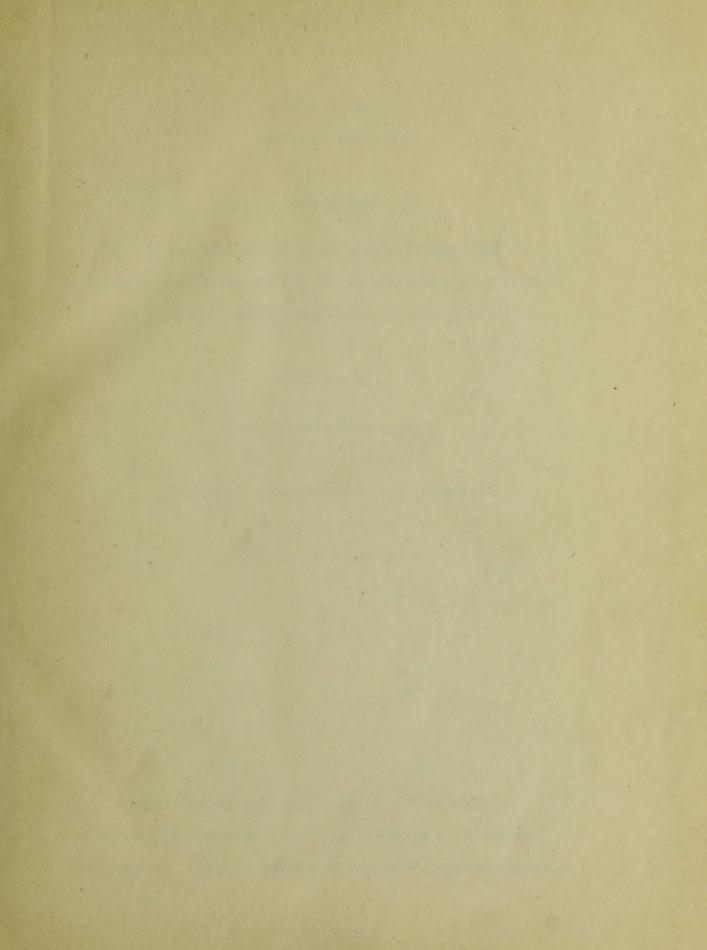
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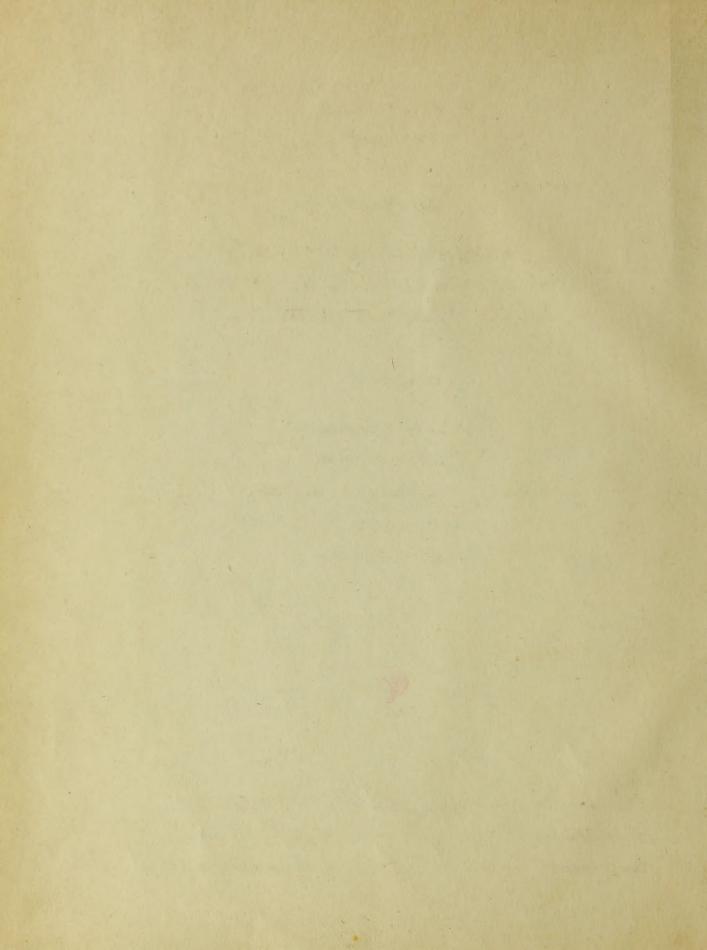
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BOSTON UNIVERSITY
SCHOOL OF EDUCATION

Dissertation

THE DEVELOPMENT OF AN OBJECTIVE TECHNIQUE

FOR ADMINISTERING AND EVALUATING PHYSICAL EXAMINATIONS IN

ELEMENTARY AND SECONDARY SCHOOLS AND IN COLLEGES

Submitted by

Edward Lewis MacDonald
(A. M. Wichita 1932)

In partial fulfillment of requirements

for the degree of

Doctor of Education

1943

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Third Reader: Edgar W. Everts, Professor of Physical Education

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### CHAPTER I

## INTRODUCTION

The Need for This Investigation

In opening the Third Annual Child Health Congress in 1926, Herbert Hoover said, in part:

The normal child of the year 1800 will not serve us today. Our standard of normality is on a higher plane. Define for us progressive normality, twenty-first century normality, that we may strive for this in the twentieth century. Picture to us in words, in crayon, and in scientific fact the child that nature, working at its best, intended. Describe to us in terms that fathers and mothers can understand the child whose organs are functioning efficiently, whose growth is proceeding unimpeded, whose senses are developed unhampered and whose potentialities are being realized mentally, morally, and physically.

We surely have enough knowledge, enough science, if brought together, compared, and sorted, to give us some standard of a normal child, or at least lead the way to him.

During soven years of war and post-war, Hoover directed the rehabilitation of ten million European children. Of this experience he says:

Our struggle was to rebuild the children up to an ideal of normal. And as laymen insistently demanded of our technical advisers, "What is normal?" I still want to know! .... We need also the positive side-what the factors are which contribute to the development of the healthy body, the healthy mind, and the healthy social organism. And we should have these factors stated in positive rather than in negative terms of safe guards.
... Standards are wanted but no standardized children.

The speaker on this occasion expressed what then was, and is still today, a problem in the measurement of health. There is no 

| American Child Health Association. Transaction of third meeting, 1926.
2/ Ibid.
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V Annalisa Dalla Medich Americanica Transporter of third mention 1904.

standard set up by which individuals can be judged to be normal, average, or well. And, research since that time seems to indicate that it will be a long time before that standard can be set up, if ever.

A further need for standardizing the technique for administering and evaluating the physical examination procedures has been felt by other workers in health research. Britten, a statistician, has set up nine criteria to be followed in giving a medical examination with the hope of standardizing it for research workers. Pearl, a physician, has set up ten other criteria in an effort to standardize the procedures of the medical examination. These two men were not particularly interested in periodic school health examinations, but the principles applied by them should also apply to school procedures in an effort to make health, or a lack of health, a more vital part of the studies of the school systems in America.

Health a Factor and Objective in Education

That health is an important factor in and an objective of the American school systems is beyond challenge. The first of the "Seven Cardinal Principles of Secondary Education" 2 set up in 1918 was Realth. The White House Conference of 1931 was called by 1/ Hollo H. Britten, Public Health Reports, July 17, 1931, Vol. 46, No. 29.

<sup>2/</sup> Raymond Fearl, Introductions to Medical Biometry and Statistics, W. S. Saunders Co., Philadelphia, 1940, pp. N.-89.

<sup>3/</sup> Cardinal Principles of Secondary Education, United States Bureau of Education, Bulletin No. 35, 1815

The White Nouse Conference On Child Realth and Protection, Vol. 4. Superintendent of Public Documents, Overnment Frinting Office, 1931.

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President Hoover to discuss child health and protection. The statistics from the Selective Service Board today emphasize the need for health. I However, how to measure this health has been a question of long standing. It is one purpose of this study to more completely unify, classify, and "sort" the science and information available in order that a more reliable instrument of research may result.

The magnitude of the task confronting one who attempts to standardize this procedure is revealed in the words of Brittens

It takes an optimistic soul indeed to hope to standardize the making of physical examinations in the face of such discordant results; yet, if such examinations are to be regarded as an instrument of research at all, semething must be done in that direction.

#### The Challenge to Educators

The challenge to change the present unsatisfactory situation presents itself at a time when physical capacity and strength is greatly needed in America. If the schools can do more to produce physical capacity, educators must be impressed with the necessity of doing it now. Then, they need to do it quickly and well.

The Purpose of This Investigation

That the objectives of this study may be clear, we purpose:

First, to define the purpose of the periodic school physical

examination, and from this definition to determine the items necessary

for school inspection;

Medical Statistics Bulletin, No. 1 (November 10, 1941), National Meadquarters of Selective Service System, Washington, D. C.

2/ Bollo H. Britten, op. cit.

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Second, to attempt by careful definition of each item in the periodic physical examination to standardize the degrees of severity of the impairment found;

Third, to weight each item to see if it is possible to obtain a score which would be comparable to mental scores or comprehensive achievement scores already in use in the educational field;

Fourth, to interpret the medical examination to the educator and to the parent more clearly than it has heretofore been possible.

> The Methods to be Used to Achieve the Furposes of This Study

A physical examination record form will be constructed in this study to meet more fully the needs of the periodic physical examination for schools. It must be determined what items are necessary on a school physical examination, and then arrange them so that the examiner may proceed with speed and thoroughness. An effort will be made to list the most common and expected abnormalities, so that the physician may easily note the particular condition which he finds and wishes to check, and space will be provided for him to express the seriousness of the defect found. There will also be space enough for the physician to write in the occasional additional information he wishes to include.

A means of weighting each of the items on the physical examination record will be worked out statistically, to see whether the total result will constitute a health score comparable to the intelligence

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score. The weights of the various items will be arrived at by judgments of one hundred physicians as to the relative importance of each item. It should be said here that when the actual work of weighting these items was completed, the evidence pointed to such a lack of agreement that it was necessary to search for some new method of evaluating the results of the physical examination.

A graphical representation of the physical examination results will be constructed which will aid educators, parents, and students to interpret the findings. Heretofore, the meaningfulness of the report to the educator, to the parent, and to the students has been so restricted in its interpretation that its purpose has been defeated. The proposed graph will reveal the normalcy or the degree of severity of every item inspected. There will be some method of showing a sliding scale of four programs—work, classes, physical education, and health—which will fit the needs of students of varying degrees of health and capability, as revealed by their physical examination.

To make this sliding scale of programs for students comparable to other scales in use in the educational field, it must be on a five-point basis. It will define in varying degrees what daily program a student should follow to best suit his health condition; it will consider types of work he can do, the amount of school work he can carry, the physical education program he can pursue, and a summary of his healthiness in terms of how any disease or impairment may affect him.

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A critical review of the literature dealing with the physical examination is presented in the following chapter.

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#### CHAPTER II

#### REVIEW OF PREVIOUS STUDIES IN THE FIELD

Each Physical Examination Must Have a Definite Purpose

Anyone who surveys the literature dealing with the physical examination, the effect of physical abnormalities on adult life, the methods used to obtain this information, and the use made of this knowledge must recognize the great progress which has been made during the past twenty-five years. Especially from 1915 to 1942, progress has been made in reporting the findings of the physical examination.

The White House Conference on Child Health and Protection has stated the purposes of the physical examination, which is an essential feature in education, as follows:

- 1. To learn as accurately as possible the health condition of each individual child, in order that the possibilities of health development may be understood, and that appropriate remedial and curative measures may be effored as needed.
- 2. To detect eases of communicable diseases in their early stages in order that proper precautions may be taken to protect other pupils and the rest of the community.
- 3. To furnish an offective occasion for health instruction of a personal and practical nature.

A further aim in medical examinations is stated by Euroa Dolfinger:
"Health Examinations should be so shaped to discover assets and

<sup>1/</sup> The Administration of the School Health Program, Vol. 2, White House Conference, Superintendent of Public Documents, Covernment Printing Office, Washington, D. C., 1931, p. 22.

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liabilities, and be used to promote personal efficiency."1

Suitable for Both Clinical and Statistical Medicine. An illustration of a blank for laboratory and clinical examination is found in Haven Emerson's "Periodic Medical Examination of Apparently Healthy Persons." Tumerous other citations could be given of different types of blanks that have been drawn up for specific purposes, of which the contemporary study for the National Youth Administration physical status would be one example. Studies undertaken by the United States Health Service have required various record forms because of the objectives they wish to achieve.

G. G. Deaver, in discussing the purpose of the physical examination, suggests that not all the items on the medical form he recommends are essential in every examination. "They should be selected on the basis of your purpose in formulating an examination blank." He says further, "The purpose of this book is to provide physical educators, students, and public health and school nurses with a manual that will sid them (1) to recognize signs of abnormal body functions and (2) to understand the techniques of medical nomenclature. "It was politinger in an address given at the Atlantic City Health

Congress, May 18, 1926, Child Health Bulletin, p. 147.

<sup>2.</sup> H. L. Dunn and Rockwood Reed, "Another System Suitable for Both Clinical and Statistical Medicine," Archives of Internal Medicine, No. 411, 1928, pp. 499-555.

<sup>3/</sup> Haven Emerson, M. D., "Periodic Medical Examination of Apparently Healthy Persons," American Medical Association, Vol. 16-19, Chicage, 1922-24.

L/ G. G. Deaver, Fundamentals of Physical Examination, W. B. Saunders, Philadelphia, 1939, p. 22.

<sup>5/</sup> Ibid., preface.

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A Millbank study published in 1932 lists the three objectives of their committee as: (1) To educate the physician in technique of examination; (2) to formulate simple yet adequate record forms; (3) to bring the idea of periodic health examination to the attention of the public.

Any physical examination or study must have its own definite purpose stated. To illustrate: Because of the nature of military service, the National Selective Service today needs to know very definitely concerning flat feet and variouse veins, while these two items are of slight concern in the routine periodic physical examination of a school. Therefore, a form providing for details of leg and foot inspection is necessary for the National Selective Service, but these items receive minor attention in the school examination. Most of the items found on record forms serve to illustrate that a definite purpose is the paramount factor in the construction of any physical examination record.

Before we pass on to the techniques used in medical practice, and attempt to determine the value of physical inspection, we should scrutinize a few standard terms used by the physician, which when used by educators have different meanings; and we also should view the problem and the risks involved in "making certain" of scientific diagnosis. Anyone working in the field of medicine should read these two chapters by Dahlberg in their entirety. 2

Physicians as Scientists

"In medicine the term 'normal' is used in two ways ....

1/ Millbank Quarterly, New York City, 1932.

<sup>2/</sup> Gunnar Dahlberg, M. D., LL. D., Statistical Method for Medical and Biological Students, George Allen & Unwin, Ltd., London, England, 1920, Chapters XX, XXI.

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Characters distinguishing the larger portion of a population are termed normal; ... (This is) also applied to individuals who are regarded as non-diseased. In the first case the term is employed in a statistical, and in the second, in a medical sense. As a rule no inconvenience need follow, even though the two senses of the word are differently delimited. Most individuals of a population are as a rule not diseased, and to thetestent the two conceptions behind the term 'normal' coincide. .... From a statistical point of view the normal is vaguely the state characterizing the majority of a population.

"But what is the distinction between disease and health? A diseased individual is one whose capacity for adaptation to the demands of life is reduced: he fulfils his task more inadequately than the others, i. c., than the majority of the population. ... If people were able to work twenty-four hours at a stretch. It would be regarded as a sign of disease to have only the working ability which is common among us. .... To say that a person is in good health may only mean that on account of our defective knowledge we do not know how soon he will be ill. .... We hard and fast line can be drawn between health and disease. ... The conceptions health and disease, which are modical conceptions, must be kept apart from the conceptions normal and abnormal, which are statistical. In any case, the word normal must not be used in such a manner that its sense can be in doubt. .... The aim of medical science, as far as it can be stated, is to enable us to say at birth when an individual is going to die. Death as a result of environmental factors, accidents, etc., will cease to play any part, and the importance of the various hereditary factors will be explored so that a reliable forecast can be given for each individual case. In that situation we must draw a distinction between disease as a temporarily reduced capacity of adaption, and disease as inplying that the individual stands a certain risk in the future.

"Medical science is striving to make a more and more detailed differentiation between diseases. This means that we try to divide the diseases into statistical classes comprising cases as similar as possible in order to be able to make a more exact prognosis. .... In the absence of certain knowledge, we must... start from the principle of always running the least risk. Both in the matter of diagnosis as in the matter of treatment we can thus never escape more subjectivity. By scientific investigation we can get a more and more clear knowledge of probabilities, .... but there will always be some uncertainty left. Thus practical medicine will never obtain exact norms for its line of action. While medicine will more and more approach its aim of becoming an exact science, the medical practitioner will when applying this science to diseased persons,

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always be left to a certain degree of conjecture and a certain degree of subjectivity in his judgment."1

The "risk" spoken of in medical diagnosis must be kept in mind in any statistical analysis to be made of the findings of the physician. To wait until a brain tumor epiphysis is sufficiently calcified to be positively identified by the X-ray would cause greater risk than is necessary for the patient. Scientific analysis can demand differences exceeding three times the standard error, or one chance in three hundred and seventy of drawing a false conclusion. But it must be necessary, in order to save life, to risk diagnosis to twice the standard deviation, or one chance in twenty-two. In making a diagnosis and in their treatment, doctors always work on the principle of running the least possible risk. Science can wait to make certain, but when life is at stake, doctors must act many times with less evidence than the exact scientist.

Standard Techniques in Medical Inspection

"Physical diagnosis is the art of the interpretation of the physical signs presented by the body in health and in disease." 2

Several standard works on the techniques of medical inspection are available. For purposes of this study, we cite "Physical Diagnosis," by Elmer and Rose, on the four methods of examination:

<sup>1/</sup> Gunnar Dahlberg, op. cit.

<sup>2/</sup> This reasoning is taken from Statistical Method for Medical and Biological Students by Gunnar Dahlberg, M. D., LL. D., Chapter II.

<sup>3/</sup> R. L. Sutton, Physical Diagnosis, Mosby Company, St. Louis, 1937, p. 32.

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- 1. Inspection: looking at the body,
- 2. Palpitation: foeling the body,
- 3. Percussion: striking the body, interpreting sounds,

5. History: family and personal.

These five techniques are the usual procedures of the physician in his diagnosis. Whether it be for school or hospital emmination in any illness, these are the tools with which he works. We must ever bear in mind that upon the correct usage and recording of these five techniques depend the accuracy and value of the physical examination.

Criteria Set Up by Other Research Workers
in the Field of Physical Examinations

Britten set up nine oriteria for anyone working in the field of medical examination

"A few principles along which progress would seem to lie:

- "(1) No impairment can be regarded as susceptible of quantitative analysis unless we can be sure that the condition has been looked for in each individual. We cannot assume that it has been looked for unless the condition is specifically mentioned in the form and checked as negative (or otherwise) by the examiner. Thus a rather detailed form is necessary. This requirement is more or less contrary to the methods of clincal medicine; but it is felt to be absolutely fundamental.
- "(2) Most impairments encountered in examinations are matters of degree, varying from nonpathological deviations from the normal to conditions requiring immediate treatment. ... In dealing with this problem, some statement of the degree is all that is possible for items which cannot be reduced at the present time to a quantitative basis. The following is suggested as a basis for such a statement:

W. F. Elmer, and W. D. Rose, Physical Diagnosis, Mevised by Walker, Mosby Co., St. Louis, eighth edition.

<sup>2/</sup> R. L. Sutton, op. eit.

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- O Normal
  - 00 Corrected
- A Abnormal, but not pathological
- XX Definitely pathological
  - XXX Severe
- "(3) It is necessary that these degrees mean more or less the same thing to the different examiners. To accomplish this end, exactly the same procedure must be followed in ascertaining the presence and degree of every impairment. .... An excellent procedure would be to have several doctors examine the same individual independently and compare their results.
- "(h) The quantitative phases of an example can be most effectively analyzed." Accordingly, physiological measurements, such as homoglobin, blood pressure, weight in relation to height and age, Smellen test of eyesight, should be determined. Whenever a condition can be expressed in a quantitative way, this should be done, because this method will go far toward eliminating differences in the doctors' standards.
- "(5) The examination should be 'blind' in so far as practicable. The physician should have a chance to examine 'control' subjects without knowing that they are such. This method has been followed in certain investigations with remarkable success. So one thing is so likely to inspire confidence, and rightly, in the results.
- "(6) A thorough history is necessary, because the examination itself gives only a cross-section survey.
- "(7) The presence of acute conditions at the time of the examination must be allowed for. In making the general physical examination for the purposes outlined .... the acute conditions with cortain specific exceptions are of no moment. So long as acute conditions are present, it is difficult to determine what enderlying chronic conditions may exist. .... Examine patient again after acute condition has subsided.
- "(8) A minimum time should be set for each examination.
- "(9) The work, its assembly, and the conclusions should be under the critical eye of one skilled in the various procedures, their interpretations, and the broad phases of human pathology. The difficulty of applying these principles is theroughly recognized; but it is felt that the attempt must be made if the general physical examination is to be used in any real sense as an instrument of research."

I/ Rollo H. Britten, Public Bealth Reports (July 17, 1931), Vol. hó, Bo. 29, Office of Industrial Bygiene and Samitation, United States Public Bealth Service.

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Raymond Pearl has set up the following ten criteria:

- "1. Accuracy must come first. Attained by carefulness and attentiveness.
- "2. Altruism. Every page, every line, every word and figure of the record should be absolutely clear as to its meaning, in case others should want to use the work. If abbreviations are made there should be a meticulously detailed account of the abbreviations, the manner of the condensations should go along with the records. Should be done at the time the record is made, not some time later.
- "3. Neatness and Legibility. If difficult to read, it is a nuisance. Neatness in arrangement also to be stressed.
- "4. Permanence. Original records should be made on (a) good quality of paper, in uniform sheets, and bound as soon as possible, or (b) on card forms of uniform size. Use ink.
- "5. Comprehensiveness. Nothing is more annoying in working with statistical records ... than to find no statement whatever made about some particular point, which certainly was observed at the time. Such ommissions arise from one of three ways: carelessly not recorded when observed, or considered to be normal and thus not worth recording, or no place in the planfor observing such a point. These may be avoided by (1) planning the investigation in advance with sufficient care to ensure that all portinent data, so far as it is possible to envisage them in the then existing state of knowledge, shall be included in the plan of the records; (2) making it an unfailing rule to record something regarding every item in the record plan in every case.
- "6. Minimal Errors of Personal Education. It is a well-established fact that observations are influenced by unconscious bias. It can lead to considerable errors, greater than those of random sampling, to which the statitician pays so much attention. Experiment with corn sorting given. There is no way of completely eliminating bias effects.
- "7. Avoidance of Bias in Sampling. If a sample of statistical material is to be justly representative of the universe from which it is drawn, it is essential that each individual thing or measurement chosen to go into the sample shall be taken at random relative to the unknown but nevertheless real composition of the universe. ... The fairness of the sample has to be judged by indirect and inferential methods. ... If personal judgment, skills, or what is fancied to be wisdom, are allowed to play any part in the choosing of individuals to go into the

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sample the result is practically certain to be biased, but .... if some purely mechanical method of picking the individuals is ... followed .... the sample is apt to be free of bias.

"3. Purposeful Adaptation. Original record forms should be carefully planned in advance so that the orderly arrangement of the individual items will most effectively conduce to speed and accuracy, first in the recording of the original observations, and second, in their subsequent tabulation. .... In recording anthropometric measurements all those measurements which are taken with one instrument .... may conveniently follow each other conscoutively in one group.

"9. Inclusiveness. All observations made should be included in the original records as they are made. ... Put down on the record everything that Nature offers. Later on the record can be looked over and studied. When a part of what actually was observed has been emitted from the record, nothing further can ever honestly be done about it.

"10. Absence of Ambiguity. A record which is capable of being road in either of two ways is a thorn in the scientific flesh. Example of abbreviated dates given. Always make the date clear."

To fulfill certain criteria for the standardization of the school physical inspection, Carl E. Burke believes it necessary to:

- 1. Standardize proparation of school medical h spector,
- 2. Define condition to be looked for in examination,
  - 3. Standardize scale of grading physical condition,
- l. Stendardize method of recording.

He has set down the criteria for standardization of these four items, but he has not defined the conditions under which the actual work should be given. That is, when is a deviation from normal a defect? Meither has he set up a standard or suggested what a physician should study to prepare for his type of examination.

<sup>1/</sup> Raymond Pearl, Introduction to Medical Biemetry and Statistics, W. B. Saunders Co., Philadelphia, 1940, pp. 84-94.

<sup>2/</sup> Carl B. Burke, "The Standardization of the School Medical Inspection", American Journal of Public Health, 1923.

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2/ Carl S. Aurice, "The Hampingsonties of the Origin lank al angestion",

# How This Study Expects to Fulfill the Criteria of Other Workers

That the standards of these three workers--Britten, Pearl, and Burke--may be achieved, the following tables of their criteria are presented with the methods used in this study to meet these criteria. The items in the left columns of the tables are abbreviated, and yet the terms of the investigators have been used as much as possible in identifying their standards. Although these three men are working in the same field, the criteria set up by each is different in its content. This is due no doubt to the experience of each worker.

Table 1 The Attempt of This Study to Fulfill the Criteria Set Up by Britten 1

Criteria	Fulfillment	
1. Condition to be looked for.	Description under each item.	
2. Provide for variations.	Degrees of severity circled.	
3. Degrees of deviation to be the same for each examiner.	Definition of items provided in a manual.	
4. Analyse quantitive items.	Nurse measures history and all objective items.	
5. Examination should be blind.	One year record. New examination made each year.	
6. A thorough history.	Items to be checked in family and personal history.	
7. Re-examination when acute condition found.	Recommended in manual.	
8. Takes minimum time.	Mochanical arrangement for speed and accuracy in recording.	
9. Examiner should be skilled in his work.	Classifies student's ability to perform.	

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Table 2 The Attempt of This Study to Fulfill the Criteria Set Up by Pearl 1

Critoria	Fulfillment
1. Accuracy Included to the	Checking of conditions the same each time. Space for additional findings if needed.
2. Altruism	System of checking and circling makes for clarity.
3. Neatness, legibility	Checking and circling leaves little room for disorder.
L. Permanence	Checked in ink and preserved for record,
5. Comprehensiveness	Each item must be checked. Items com- plote. Room for others if examiner sees need.
6. Minimel errors of personal education	by definition and mechanical arrange- ment chances of error are minimized.
7. Ho bies in sampling	1,600 boys and 1,900 girls in the United States and Canada used in making norms.
8. Purposeful adaption	Examination starts with items for nurse to record. Physician's part arranged for inspection in logical, orderly way.
9. Inclusiveness	Examination includes necessary items for inspection in schools.
10. No ambiguity	Record can be interpreted only one way after checking and circling.

Table 5 The Attempt of This Study to Fulfill the Criteria Set Up by Burke 2

Critoria	Fulfillment
1. Standardise preparation of school medical inspection.	Manual provided for inspector.
2. Define conditions to be looked for in examination.	Manual contains these definitions
3. Standard scale for grading condition	Dogrees of severity circled.
4. Standard method of recording.	Check condition found. Circle degree of severity.

<sup>1/</sup> Raymond Fearl, op. cit., p. 96.

<sup>2/</sup> Carl B. Surke, op. cit.

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Previous Physical Examination Records

Branmell \$\frac{1}{2}\$ has listed those items which are most frequently included in health examinations.

Table 4 Items Included in Health Examinations of Schools in the Study by Brannell on the Matienal Survey of Secondary Education

· 70-87 per cent	31-47 per cent	Others
eyes throat teeth ears nose heart lungs	orthopedic condition speech defects nervous system	skin glands posture hernia vaccination hair goiter internal parasites
		anemia abdominal abnormalities

The White House Conference has set up the items which should be inspected in medical examinations as follows:2/

Certain facts pertinent to the examination, such as height, weight, age, can be supplied by the nurse or teacher. Examinations should include eyes, ears, nose, throat, teeth, heart, lungs, feet, abdomen, back, extremities, skin, orthopedic conditions, nutritional condition, nervous condition, mental and emotional state, glandular condition, and general health tone, personal and family history.

The Detroit Department of Public Health, in its endeavor to provide uniform language for physical defects, described, defined, and limited items appearing on their medical examination blank under

<sup>1/</sup> P. R. Brammell, Health Work and Physical Education, Bulletin of the Office of Education, United States Department of Interior, No. 17, 1932, p. 28.

<sup>2/</sup> The Administration of the School Health Program, Vol. 2, White House Conference, United States Government Printing Office, 1931, p.22.

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Table 4 Items Included in Health Examinations of Schools in the

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### the following heads:

Wormal, degrees from normal, defined here for thyroid, vision, hearing, mouth breathing, tonsils, skin, anemia, teeth, deformed palate, cardiac disease, chest examination, enlarged cervical glands, orthopedic defects, phimosis, nervous diseases.

A comparative table of the items on four physical examinations will be found in Table 6. The grading of those items is our next interest.

V. C. Pedersen 2 has set up an elaborate system of grading degrees of severity. He suggests the following fourteen-point scale:

Table 5 Algebraic Signs for Recording Variations in Disease or Changes in Treatment

. Variation or Change	Algebraic Sign
Positive	± 100 100 100 100 100 100 100 100 100 10
Strongly positive	++
Very strongly positive	+++
Extremely positive	++++
Absent	O
Doubtful	personal state of the state of
Weak	干
Distinctly weak	+7
Very weak	+77
Unchanged	sea, meat lill-sea, respiratory
Variable	
Decreasing	
Increasing	
Stopped	#

Haven Emerson, as chairman of a committee on health and public instruction made up of five physicians, suggests two forms, one containing: Immunization, Family History, Personal History; and the V. T. Palmer, "Uniform Language for Physical Defects", Weekly Health Review (October 15, 1921), City of Detroit Department of Health.

2/ V. C. Pedersen, "Accuracy and Brevity of Office Case Records", American Journal of Surgery, Vol. XXVII, (August, 1913), No. 8.

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other: Physical Examination, with patient standing, sitting, and lying. On the latter form, the items to be examined are given, but no space for description of defects is allowed. Nine tenths of the sheet 8 by 11 inches in size is left blank for the physician's comments and advice. He comments only upon the abnormal.

H. L. Dunn and Rockwood Reed have made a fifteen-page form for a clinical and statistical record, regarding which they say 2

The progress obtained from observation made at the bedside has progressed with the advance in laboratory medicine, but has scarcely kept pace with it. This is due, in part at least, to the ignorance displayed by the clinical group in modern statistical technique. ... The reasons for the failure to use statistical science may be assigned largely to the form of the clinical record which does not yield itself to technical analysis. On the other hand, many valuable features of the clinical chart in its present form must not be sacrificed for the completeness so desirable in any numberical analysis. A single glance at the clinical record should suffice for the consultant to locate the particular item in which he is interested while he is standing by the bedside of his patient.

The purpose of Dunn and Reed's blank is to conserve the physician's time. It is a hospital record, and is not meant particularly for clinical or private physician's use. It is divided into systems thus: General history, present illness, past illness, respiratory system, circulatory system, gastro-intestinal system, genito-urinary system, nervous system, family history, marital history, menstrual history, habits.

Head and face, mouth and throat, heart, vessels, abdomen, extremities, neck, spine, therax chart, chest and lungs, neurological, lymph lodes and skin, genitalia, rectum and anus, abnormal psyche.

1/ Haven Emerson, "Periodic Medical Examination of Apparently Healthy Persons," American Medical Association Bulletin, (1922-24) Vol. 16-19, Chicago.

<sup>2/</sup> H. L. Dunn and Rockwood Reed, op. cit., pp. 149, 535.

<sup>3/</sup> Ibid.

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For a discussion of medical record to fit the need of records in the hospital see "Medical Records in the Hospital," by M. T. MacEachern. 4

Interpreting the Results of the

Physical Examination

The physician makes recommendations at the conclusion of his inspection. The nature of his recommendations depends upon the type of provision made for them on the blank used.

The blank by Haven Emerson 2 makes it necessary for the physician to write out such comment as he cares to make. The blank of the Bational Youth Administration health survey, on the other hand, has six categories for the physician to check:

"Health Status Classification: (Chocking classification recommended for this youth) Fit for any work or athletic activity; no Class I. defects, or only very slight defects. Class II. Fit for anywork or athletic activity: abnormal conditions present can be corrected by proper measures (medical, dental, exercise, diet). Class III. Fit for almost any kind of employment or recreational activity; minor defects not thought to be amenable to correction. but not severely handicapping. (Physician to indicate types of work to be avoided or to approve assignment.) Class IV. Fit only for certain kinds of employment or recreational activity. (Physician to approve assignment and to state whether there is necessity for medical supervision of the youth during employment. Class V. Temporarily unfit for any employment or recreational activity; classification in this class implies subsequent reclassification to Class I, II, III, or IV after

W. T. Machachern, Medical Records in the Mospital, Physician's Record Co., Chicago.

<sup>2/</sup> Haven Emerson, op. cit.

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the termination of the temporary period of unemployability. (This form is not to be delayed pending such reclassification.) Permanently, or for a prolonged poriod, unfit for any employment or recreational activity."1

To fulfill the criteria set up for efficient medical examinations. the checked categories plan will, no doubt, best serve our purpose. This study also plans for a graphic representation of the physical examination results.

Physical Emmination Records with

a Eugerical Score

The system of marking described 3/ "is of value in correcting defects and improving physical conditions, but is of little or no value in attempting to give a mathematical rank to the physical condition."

This question of giving a mathematical rank, or a figure, as the result of the medical examination, is very desirable from the standpoint of the research worker. A figure could be used as any other scores are used in the educational field for the purposes of comparison and prediction.

In the literature available, three attempts have been reported From Form 120, Pederal Security Agency, National Youth Administration Health Examination, Record, 1939.

<sup>2/</sup> Eveline Burton Lyle, "A Study of the Correlation Between the Medical Experimetion, the Physical Pitness Index, the Intelligence Quotient, and the Scholastic Achievement of Sixty Girls at the Posse School of Physical Education," Unpublished Master's Thesis, Boston University, 1936, p. 17.

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to deduct from a score of a hundred a standard amount for each defect found. These weights range from one half to one hundred, depending on the examiner and on the severity of the condition found. All three attempts were made by medically trained personnel. These writers had the negative medical philosophy. They represent a very real effort to evaluate numerically the physical condition of those examined.

The first scoring device reported in the literature was attempted by Deaver 2 in the Chicago Y. M. C. A., and represents an effort on his part to motivate the medical examination. To compare one boy with another on a standard scale should help to have his physical defects corrected.

A refinement of the Deaver Scale is found in the Hyde Park Score Sheet. It is possible that this refinement of Deaver's work is due to the experience gained from its use.

The Lyle Scale is a further attempt at placing a numerical score on the medical-examination record. To the medical examination, Doetor Lyle has added other measures in support of the physician's work, such as the Physical Fitness Index, the Intelligence Quotient, I/A discussion of negative and positive philosophy will be found in Chapter III.

<sup>2/</sup> G. G. Deaver, Notivating Physical Examinations, The Y. M. C. A. Press, Chicago.

<sup>3/</sup> Evoline Burton Lyle, op. cit.

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and the Scholastic Achievement. These mental factors have done little to substantiate the work of the physician. A detailed discussion of these three efforts, compared with the one made in this study, will be found in Chapter IV.

Having reviewed what other workers have attempted to do, the writer's task becomes one of preparing a record form by which he may fulfill the requirements set up for the physical examination. This task is attempted in Chapter III.

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test is attempted to chapter lil.

#### CHAPTER III

## THE CONSTRUCTION AND DEVELOPMENT OF THE PHYSICAL EXAMINATION RECORD

The Periodic Physical Examination Defined

The items selected for consideration on the periodic physical examination depend upon the purpose of the inspection. For the purpose of this study, let us accept the ideas found in the literature of the White House Conference. Miss Emma Dolfinger's idea of assets, 2/ and an idea on interpretation original in the present study.

The object of the periodic physical examination then becomes:

(1) to discover individual health assets; (2) to learn as accurately as possible individual health liabilities, that appropriate remedial measures may be taken; and (3) to interpret these findings to the educator and to the parent.

Present medical procedures deal with liabilities. When no defects are marked by the physician, the assumption has been that there is a normal condition, but a normal condition is an asset, and should be recorded. It is not safe to assume an item has been inspected until the physician declares it so. The negative report of

I/ The Administration of the School Health Program, Vol. 2, The White House Conference, Superintendent of Public Documents, Government Printing Office, 1931.

<sup>2/</sup> Emma Dolfinger in an address given at the Atlantic City Health Congress, May 18, 1926, Child Health Bulletin.

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the physician has not met the need of the educator. As the physician's report is given a positive turn, it will become more valuable to the educator.

The Selection of Items for the Physical Examination Record

In the studies of the National Survey of Secondary Education, I the White House Conference, I and the Detroit study I give the items necessary for the periodic physical examination of the school; and for our purpose, we will confine the school to the secondary and collegiate levels. Table 6 compares the items of these investigators.

Table 6 Comparison of Items on Four School Physical Examination Records

Braumel1	White House	Palmer	MacDonald
Abdomen	Abdomen		Abdomen
-	Age		Age
Anemia	Mutrition		Weight
-	Back	-	Back
Ears	Ears	Hearing	Hearing
-	Extremities	-	-
Eyes	Eyes	Vision	Vision
-			Face
· July The F	Feet	-	Feet
Glands	Glands	Thyroid	Thyroid
thyroid cervical		Corvical	Cervical
Hair	The state of the state of	de l'annie	Heir

I/ P. H. Branmell, Health Work and Physical Education, Bulletin of the Office of Education, United States Department of Interior, No. 17, 1932.

<sup>2/</sup> Up. cit.

<sup>3/</sup> G. T. Palmer, "Uniform Language for Physical Defects", Weekly Health Review (October 15, 1921) City of Detroit Department of Health

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<sup>3/</sup> G. T. Palmor, "Galiera Language for Negaloni Defende", Nachty

Table 6 (Concluded)

Brannell	White House	Palmer	MacDonald
Heart	Heart	Cardiac disease	Heart
	Height	-	Height
Hernia		-	Hernia
ST.S (not decay)	History	-	History
	personal family	River from	personal family
Internal parasites		Name of Street Con-	The state of the
lamgs	Lungs	Chest	Lungs
- Annie	Mental	-11030	THEFT
The Property	MODELL GOLD		Musculature
Nervous system	Nervous	Nervous diseases	Reflexes
speech			
Nose	Nose	Mouth breathing	Nose
Orthopedic	Orthopedic	Orthopedic	Kyphosis
		defects	Scoliosis
-		-	Other defects
we .		Phimosis	
Posture		-	Posture
Skin	Skin	Skin	Skin
Teeth	Teeth	-	Teeth
Throat	Throat	Tonsils	Throat
TOTAL TOTAL STREET		Palate	Tonsils
Vaccination			Immunization

## The Selection of Descriptive Details

To provide descriptive details for the physician to mark normal or impaired in fulfillment of the first criteria given by Britten.

Table 7 is presented. These designations will make certain that the item has been inspected for the details outlined, and will undoubtedly suggest to the physician that he look for other conditions which may not be so frequently found as deviations from the normal condition of the particular items under consideration.

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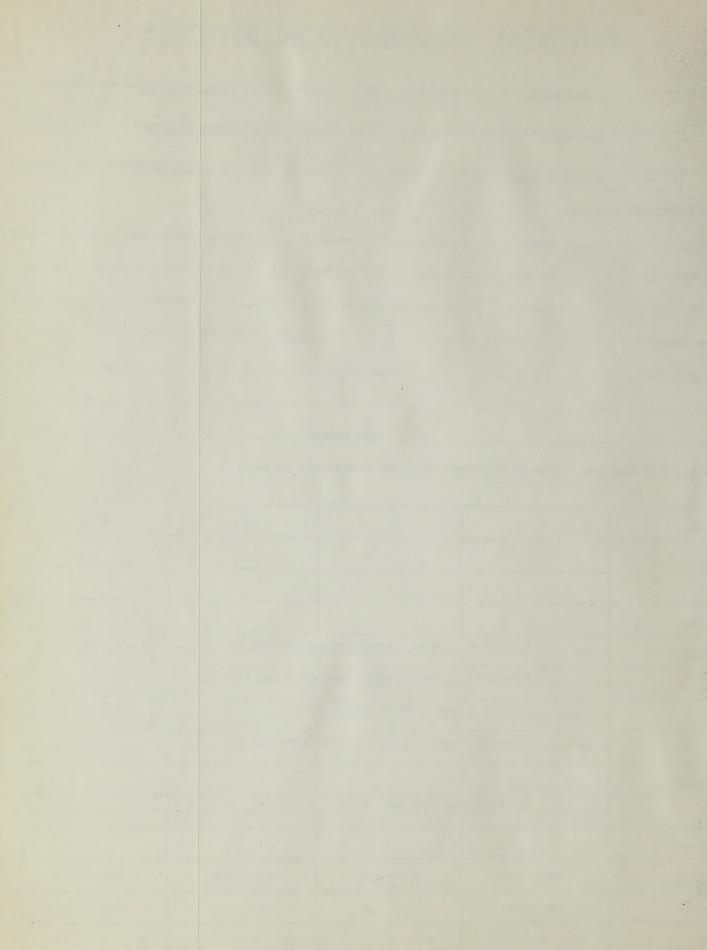
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## PHYSICAL EXAMINATION RECORD

				. ,
	Name of student		College or A	cademy
	Home address		Parent or G	uardian
	Birthplace of father		Birthplace o	f mother
PREVIOUS DISEASES (	with dates):			
	Anemia	-		ken pox
	Bronchitis			
Diphtheria	Pneumonia	Injuries		ration
Smallpox vaccination			Diphtheria immunization	
FAMILY HISTORY:				
Heart	Kidney		Cancer	***************************************
Epilepsy		Mental Disease	ses	***************************************
Directione: Write in the proper	r space the number of the descri	ptive words which are applicab	ple to this student.	
School Year	19	19	19	19
Age				1
Grade				
Temp. & Pulse				
Musculature	1. Muscles firm	. 2. Flabby. 8. Subcutaneous fa	t plentiful and firm.	
Skin	1. Healthy glow	. 2. Mucous membrane reddish	pink. 8. Pale. 4. Acne.	
Hair	1. Smooth. 2. (	Glossy. 8. Dry. 4. Brittle. 5. R	ough.	
Fece	1. Face bright	in repose. 2. Eyes clear. 3. Dar	k circles under eyes.	
Height (inches)				
Nutrition	Record actual	weight and optimal weight.		
Blood Pressure				
Vision: Without glasses*	R20/ L20/	R20/ L20/	R20/ L20/	R20/ L20/
With glasses*	R20/ L20/	R20/ L20/	R20/ L20/	R20/ L20/
Hearing®	R L	R L	R L	R L

<sup>\*</sup> See Manual for directions in making this test.

Note: Adult Health Standard to be checked by student and filed with this record.



STUDENT'S NAME	***************************************

School Year	. 19	19	19	19
Nose	1. Normal. 2. Ac	denoids. 8. Dev. septum. 4. Er	nlarged turbinate. 5. Spur.	
Throat	1. Normal. 2. Po	est-laryngeal discharge. S. Acu	te cold.	
l'onsils	1. Normal. 2. Er	nlarged. 8. Buried. 4. Cryptic.	5. Inflamed. 6. Absent.	
Teeth	1. Good. 2. Many	fillings. 8. Cavities. 4. Tarta	r. 5. Diseased gums.	
Reflexes	1. Normal. 2. 81	ghtly exaggerated. 8. Greatly	exaggerated. 4. Absent.	
Cervical Glands	1. Normal. 2. Sli	ghtly enlarged. 8. Moderately	enlarged.	
Thyroid	1. Normal. 2. Sli	ghtly enlarged. 8. Moderately	enlarged.	,
Heart	1. Muscle tone go	od. 2. Muscle tone poor. 8. E	nlarged. 4. Murmurs. 5. Irregula	rities. 6. Valvular disease.
Angs .		bnormal hreath sounds. 8. Re		
	4. Resonance imp	aired. 5. Resonance poor. 6. I	Definite Dullness, 7. Råles.	
Abdomen	1. Normal. 2. Ter	nsion. 3. Tenderness. 4. Scar.	5. Hernia.	

Posture*	1. Excellent. 2. Good. 8. Poor. 4. Bad.
Back	1. Normal. 2. Lordosis. 3. Scoliosis. 4. Kyphosis.
Feet	1. Normal. 2. Long. arch low. 8. Transverse arch callous. 4. Bunions. 5. Corns.
Doctor's Signature	
Nurse's Signature	

Physician's Advice to Student:

<sup>\*</sup>Use Standard for Grading Posture as given in the General Conference manual "Physical Examination and Health Education in Secondary Schools and Colleges."

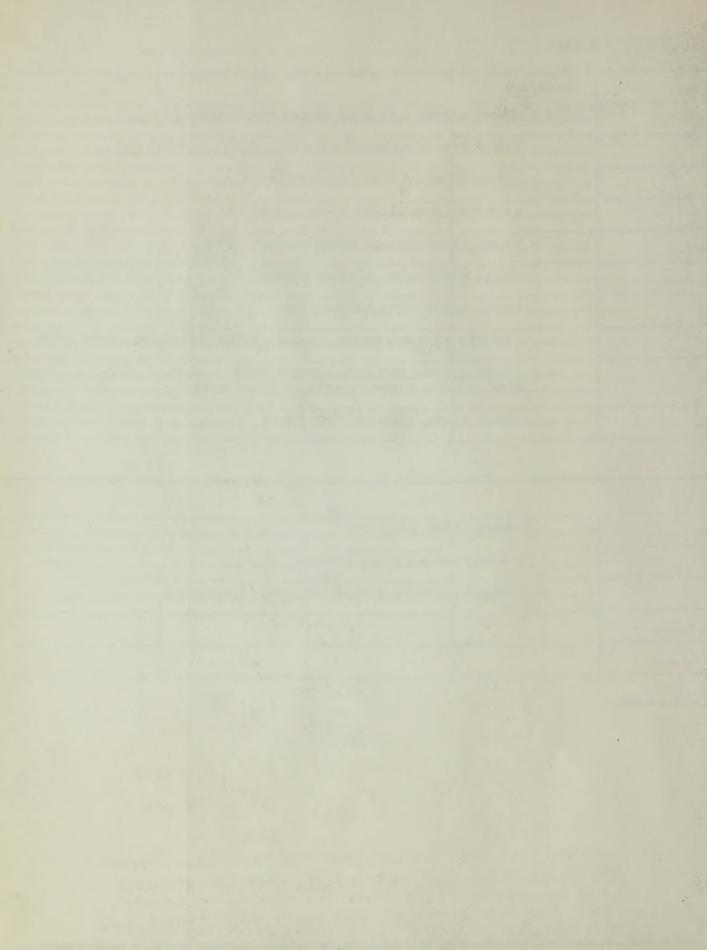


Table 7 Descriptive Details Selected for the Physical Examination Record 1

Items	Descriptive Details	Items	Descriptive Details
Ago:		Personal	History (cont.)
0			Measles
Sex:			Mumps
			Operation
General He	alth:	Marie Marie Marie	Pleurisy
	Excellent	N ANDREAD	Pneumonia
	High Average		Rhoumatism
	Low Average		Soarlet Fever
	Poor		Sinusitis
Immunizati	F	STREET,	Tuberculosis
	Diphtheria-Schick		Typhoid
	(Neg.		Whooping Cough
	(Pos.	Balanta Santa	Other diseases
	Scarlet Fever	Weight:	
	Smallpox	Blood Pre	issure:
	Typhoid (in past	Musculatu	
	7 yrs.)		flabby
	Tetanus toxoid		subcutaneous fat
	Other	Now's a	soanty
Family His		100000	underdeveloped
- command	Arthritis		coordination poor
	Asthma	Hairs	work that the transfer of the
	Cancer		dry
	Diabetes	DONNERS.	oily
	Epilepsy		dandruff
	Heart	Hearing	
	Kidney	and and	right
	Mental	DENNY LOS	left
	Tuberculosis	Eye disea	
	Other diseases	Vision:	
ieight in			right
C-P-R:		- Aling The	left
Personal E	Sahames	Glasses:	200
	Accident	-2000000	right
	Allergy	A CHEST OF	left
	Arthritis	Faces	
	Astlma	20004	pale
	Chickenpox	8 4	adenoid expression
	Colds, Frequent	14 15 11 704	jaundice
	Diabotes		dark circled eyes
	Diphtheria	Nose:	mark origing eyes
		11000	0.00.100
	Eay Fever	The state of the state of	spur

I/ These terms were selected from a four-year record of a different mechanical arrangement, and were listed as a guide for the examining physician. Form Bll3, Physical Examination and Health Education in Secondary Schools and Colleges, General Conference of Seventh-day Adventists, Review and Herald Publishing Association, Washington, D.C., 1931.

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Table 7 (Concluded)

Items	Descriptive Details	Items	Descriptive Details
Moses (od	ont.)	Heart:	
130	deviated septum	NOON RECORD	enlarged
1 4 2 2 2 2	enlarged turbinate	1	irregularities
Throat:	San Alexander	The same	murmurs
	discharge	TANIOR .	tone quality
	inflammation	Lungs:	The same and the same and
Tonsils:		Should expression -	rales
	absent	Mary Country oper	dullness
	enlarged	Commission of the last	Lack of expansion
	buried	Abdomen:	
	cryptic	DECEMBER -	soar
	inflamed	TOTAL STREET	tender - where
	tags	Street -	ptosis
Teeth:		THE STATE OF THE S	Hernia
	tartar	Reflexes:	
	cavities	Contract of the last of the la	absent
	fillings	Becami grade and	sluggish
Gayan .	diseased guns		exaggerated
Cervical	The state of the s	Foet:	12 100 100 100 100
	enlarged		flat
24	fixed		relaxed
Phyroidi		Service of the last	pronation
	nodular	***	athlete's feet
	enlarged	Posture:	9 0 4
Skin:	palpable	The same and	lordosis
PELNE.	William Co. In the last the last	With the same	kyphosis
	acne diseased	Ohham Dad	scoliosis cots Found:
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Three hundred ecpies of this four-year record were inspected in one institution. Some terms on this form B113, which were never used by eight different physicians in four years, were omitted in the early form used in this study. The terms which were checked or written in by physicians were retained, and a new record form, Figure 1, was devised.

While the four-year record should be of service for matters of comparative study and growth, the one-year record has the advantage

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#### PHYSICAL EXAMINATION RECORD Blank, John school Central State Date \_ Sept. 1937 Grade Junior Sex \_ Age PREVIOUS DISEASES: GENERAL HEALTH: FACE: pale \_\_\_ adenoid expression \_ Excellent ( ) Diphtheria ... jaundice \_ (V). Malaria \_\_\_ Above Average .... dark circled eyes \_\_\_ Below Average \_ Pneumonia \_ NOSE: spur \_ Scarlet Fever Poor -deviated septum \_\_\_ Tuberculosis \_ enlarged turbinate \_\_\_ IMMUNIZATION: Typhoid \_ THROAT: discharge \_\_\_ ) Whooping Cough -Diphtheria ..... inflammation \_\_\_ Scarlet Fever \_ ( ) Rheumatism \_\_\_ TONSILS: absent \_\_ Smallpox ... Pleurisy \_\_\_ - (V) enlarged \_\_\_\_ ( ) Diabetes Other \_\_\_ buried \_ Typhoid (in past 3 yrs.) ( ) Accident \_ Operation ... inflamed \_ FAMILY HISTORY: Asthma . TEETH: tartar \_\_\_ Cancer ..... ( ) Frequent Colds\_ Epilepsy .... Mumps \_\_\_ ) Measles . diseased gums \_\_\_ Kidney ( ) Chickenpox \_ CERVICAL enlarged \_\_\_ ( ) Infantile Paralysis \_ ( ) Hay Fever \_\_\_\_ Mental . GLANDS: fixed \_\_ Tuberculosis ..... THYROID: nodular \_ ( ) Other diseases Other enlarged .... SKIN: dry \_\_\_ HEIGHT in inches 68 acne \_\_\_\_ 99-60-18 rough ... HEART: enlarged . Check condition found ( /). Circle = to show degree of defect. irregularities \_\_ murmurs Norm Fair tone quality -143/44 1 LUNGS: rales .... dullness \_\_\_ BLOOD PRESSURE: 120/go ( ABDOMEN: scar \_ MUSCULATURE: flabby ( ) underdeveloped \_\_\_\_ ( ) tender rt low quad .... organs felt \_\_\_\_\_ tender elsewhere HAIR: dry ... REFLEXES: absent . sluggish dandruff .... exaggerated FEET: flat \_\_ HEARING right .... callous \_\_\_\_ (E) athlete's foot -VISION: 29/ POSTURE: lordosis kyphosis \_\_\_\_\_ 20/ scoliosis \_\_ 29/ OTHER DEFECTS FOUND GLASSES: right ..... (29/20) left .... NURSE'S SIGNATURE: U. PHYSICIAN'S SIGNATURE

Figure 1 Completed Physical Examination Record with Profile for School's Use

examination is administered. It should be said here that in the writer's first attempt to arrange the physical examination record for ease in administering a four-year record was used, but during the administering of the physical examinations for the second year, it was observed that the physicians habitually noted the findings on the student for the previous year. It did not appear to the writer that these observations were for comparative purposes, but rather that they were used as a "crutch" in medical diagnosis for the second year. It should also be stated that in ca cases of transfer of pupils, the physical examinations have difficulty in following the student. Because of this "seeing" by the physician, it has been felt best to abandon the form with the four-year record, and have a fresh form each year the examination is given. Comparisons could be made by checking the progress of the four years, if all previous examinations were filed together.

Differences in Medical and Educational Philosophy

During his five-year medical course, the physician has studied disease and its remedy. Hence, his background leads him to make his observations in terms of defects which may underlie the cause or result of the present disease. His philosophy is negative, because he is looking for defects. His philosophy is expressed in terms of disease, cause and result. He is concerned only with discovering each and every underlying cause of disease which is present, and in his checking, declares negative those

I/This thought was expressed to the writer by W.R. Murphy, M.D., D.P.H., Director of Health Department, District of Columbia.

<sup>2/</sup> Rollo H. Britten, Public Health Reports (July 17, 1931), Vol. 46, No. 29, Office of Industrial Eygiene and Sanitation, United States Public Health Service.

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<sup>2/</sup> Bello H. Detten, Public States woods (Malvilly 1981), Vol. Lo. 10. 27, 25724 of Long March System and Cartesting, Catton Agrees Family Really Services.

abmormalities or defects are positive factors in diagnosis. He will start with 100 as perfect, and will deduct so many points for each defect or positive symptom which he finds. If the physician finds no perceptible defects present, he assumes there is a normal condition.

But the educator starts with zero, and builds upon a positive scale these items which contribute to his standard. Those items, which do not contribute to a positive program, he determines negative. Thus, a physician declares a diseased tonsil as positive evidence for tearing down or subtracting from health, and the educator will declare the same condition negative, because it does not add to his scale of building up to perfection.

The Use of Present Medical Philosophy to Place a Numerical Score on the Physical Examination

The work of Deaver, I Hyde Park, I and Lyle I are all attempts by physicians to establish a numerical score. Their procedure has been to subtract from a total score of 100 from one-half point to 100 points, depending upon the severity of the items under their consideration. This method was discussed in Chapter II, and will be discussed further in Chapter IV.

The Use of Present Educational Philosophy in Constructing an Evaluation of the Physical Examination

It is obviour at the outset that physicians are the only persons

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qualified to administer and interpret the physical examination. While it is attempted to bring educational philosophy to this problem, the examinations must be made by physicians, and they must use their method of evaluation. But, checks and balances and guides may be constructed so that it will be possible for the physician to use more objective methods in giving the physical examination.

The Professional Status of Physicians Chosen to

Evaluate the Physical Examination

Since the value of a scale is affected by the training and professional status of its contributors, the following table will illustrate the standing of the physicians who evaluated the items on the physical examination record.

This selection of physicians represents a random sampling of physicians, all of whom are graduates of a Grade A medical school. In addition, sixty per cent of them hold fellowships in continental societies, and ten per cent hold fellowships in American honorary medical societies. All of these physicians have recorded the school

Table 8 Professional Status of Physicians Scoring the Medical Questionnaire in This Study

Status	Per Cent	-
Medical Directors of Sanitariums Specialists on Sanitarium Staffs	19 39	
Professors in a Medical College Physicians in Private Practice	19 23	
Total	100	

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physical examinations on the report constructed in this study.

Weighting the Items on the Record Form

the relative importance of one item against another. This chart is presented on page 35. A letter was sent to each physician, instructing him as to the use of the rating sheet. If in his opinion one item in the left-hand column, such as "Previous Diseases," was more important than an item in the top row, such as "Abdomen," he was to place a plus mark in the space provided. This applied to physical examinations of high-school and college students. If, however, "Previous Diseases" were of less importance than "Abdomen," he was to place a mimus mark in the space provided, and so on through the entire top row. In this manner of rating, each item in the left-hand column was checked against each item appearing on the top row. When he completed previous diseases, he was to check family history, and so on through each item in the left-hand column.

Statistically and theoretically, the sum of the plus marks horizontally should be the score for the item. The sum of the minus scores vertically for the same item should be its anti-type if there is perfect correlation. To note the consistency with which each physicial agreed with himself, coefficients of reliability were calculated on each one. These coefficients were computed, and

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Figure 2 Physicians' Rating Chart Used to Evaluate the Items on the Physical Examination

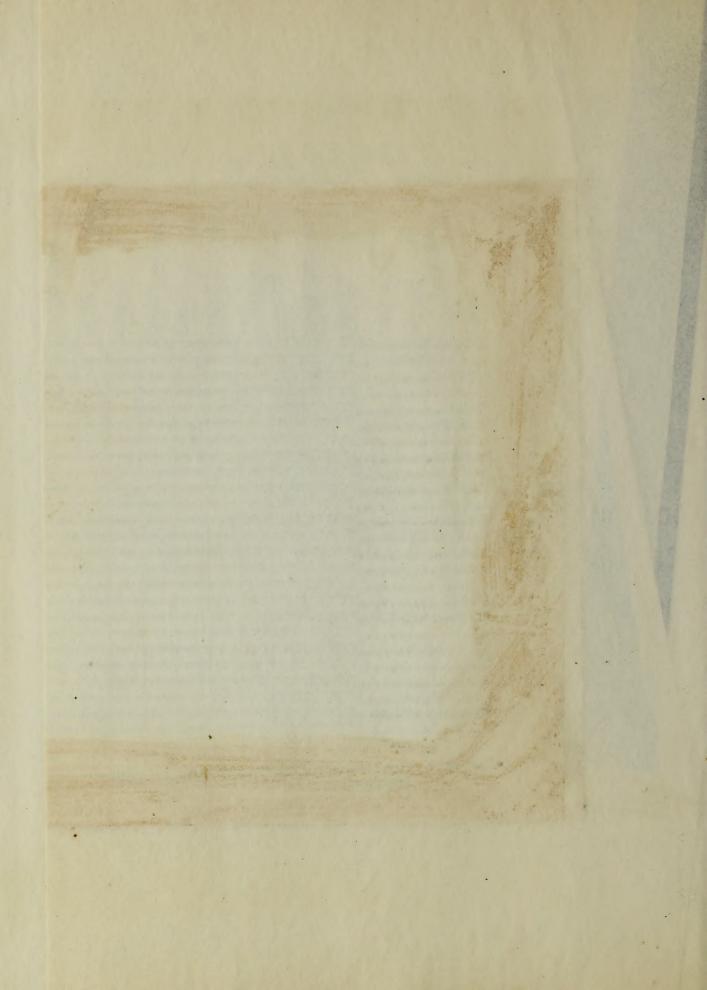


Table 9 shows the results for each of eighteen physicians' answers.

Table 9 Coefficients of Reliability for Eighteen Physicians Who Marked Twenty-Three Items on the Physical Examination Record

Physician	Rating	Physician	Rating
Dr. A	1.00	Dr. J	0.89
Dr. B	1.00	Dr. K	0.88
Dr. C	0.96	Dr. L	0.86
Dr. D	0.96	Dr. M	0.86
Dr. E	0.95	Dr. H	0.85
Dr. F	0.94	Dr. O	0.05
Dr. G	0.92	Dr. P	0.78
Dr. H	0.91	Dr. Q	0.78
Dr. I	0.91	Dr. R	0.77

The horizontal plus marks and the vertical minus marks are totaled and an average is obtained on these eighteen physicians.

This score was cut in half because of the convenience of working with smaller numbers. The results of these computations are found in Table 10.

The next point of interest is to note the agreement of the physicians in their evaluations on each item. To use a self-correlation technique here would misrepresent the case, for medical examinations are given by one physician, not five or eighteen. Therefore, the scores of seventeen physicians have been averaged; and the deviation between each physician's judgment and the other seventeen in the test group has been computed. Thus, the rating of one physician against the rating of seventeen other physicians has been compared.

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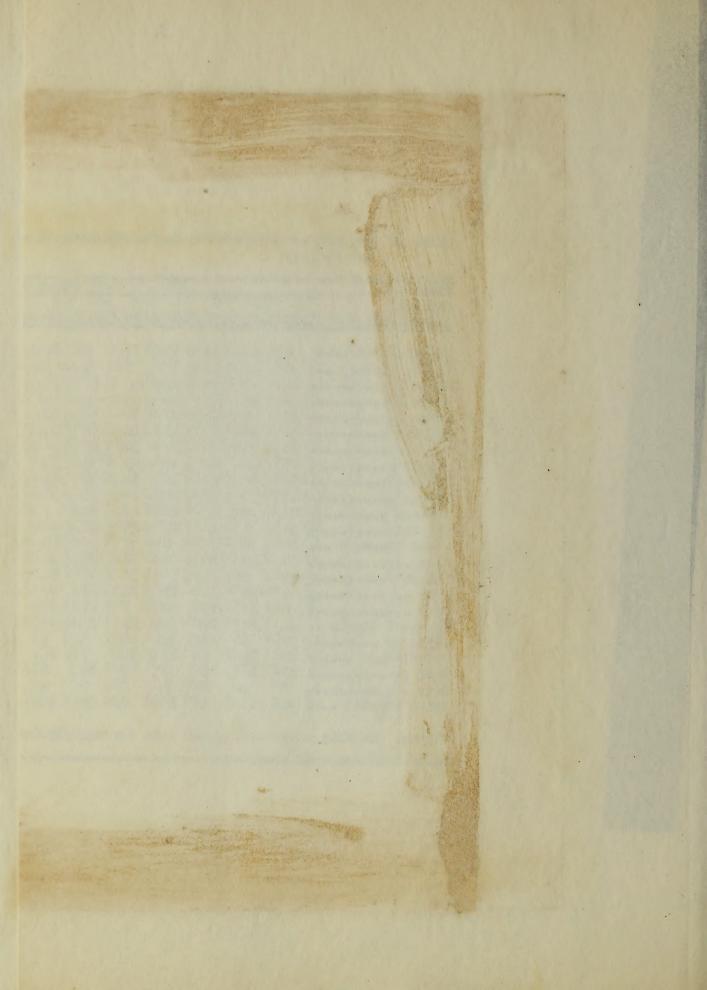
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Table 10 Physicians Evaluations on Twenty-Three Items Together with Each Physician's Coefficient of Neliability

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		in the second				2	G	II	1	J	I.	L	M	N	0	P	4	B
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Previous Diseases	6	22	13	15	17	9	12	314	16	12	29	25	21	17	9	23	25	31
Femily History ***	. 0	12	11	17	3	0	5	11	15	10	5	25	10	16	17	25	6	26
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Hoart **********	8 2	39	16	1,6	1,6	33 44,	35	46	37 16	43	16	12	16	16	33	36	45	39
Tooth	30	1.6	24	27	30	31	10	311	31	34	31	26	20	30	29	30	37	32
Hoaring	Lo	25	29	43	31	20	- 33	24	37	36	35	27	35	30	28	35	18	28
Tonsils	36	30	23	37	36	10	1,2	36	37	32	38	32	39	37	22	29	12	35
Weight	40 .00	38	22	19	23	33	35	9	8	12	10	19	15	25	27	17	16	38
Posture		20	25	16	11	14	23	12	17	10	9	21	19	16	27	20	10	10
Vision ********		35	12	12	Lo	35	39	10	13	13	1,2	23	35	23	1,2	14	27	37
Abdomen		2	10	20	1,1	34	8	16	25	31	19	16	35	34	41	36	19	21
Thyroid		0	18	23	29	32	29	30	el.	32	20	12	33	31	36	33	32	8
Blood Pressure		2	38	8	37	15	21	26	31	30	19	30	26	38	Li	31	10	31
E099	and .	1,2	36	26	26	22	19	20	53	34	36	15	14	21	21	22	26	11
Throat	20	6	34	35	31	35	23	31	26	35	30	32	30	29	12	15	35	33
Skin	- 27%	23	1	21	14	11	29	13	3	12	13	8	10	21	18	11	6	21,
Foot	6	18	19	12	7	21	20	. 3	13	15	24	3	33	11	27	25	10	15
Cervical Glands	24	23	10	29	21	17	17	23	22	17	9	20	18	17	20	O.L	18	6
Reflexes		6	11	20	11	5	5	6	14	12	20	19	1	17	22	12	18	23
Musculature	-	34	9	19	14	7	1	3	16	9	10	8	10	13	21	5	10	12
Face ***********	W 15	16	9	7	13	11	6	12	4	12	7	5	7	11	10	6	14	25
Hair	2	6	2	. 1	19	0	3	1	1	10	2	0	L	2	1	0	6	5
Other Disease	16	16	6	16	Q	24	22	16	15	11	10	20	25	3	1	11	21	14
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Highest possible score on any one item for any physician is life.

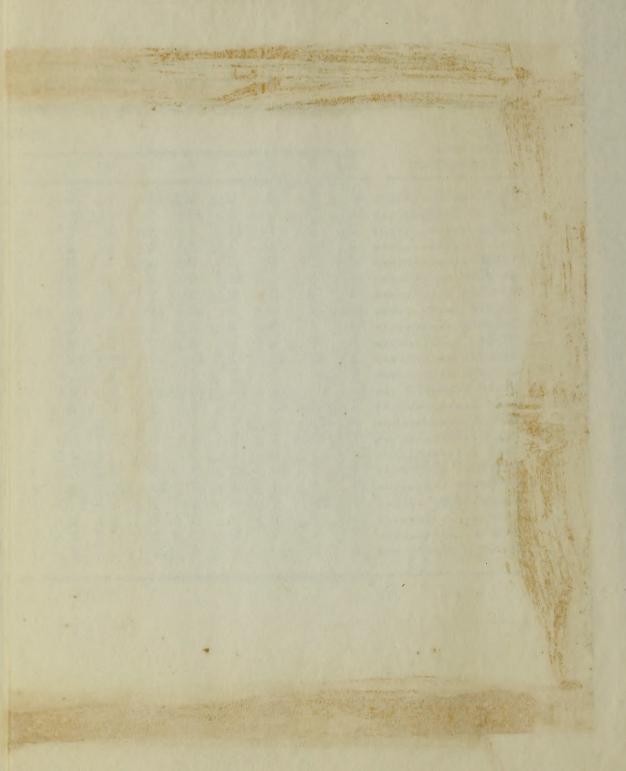


Another point of interest in connection with this rating is to note the specific disagreements which each physician had with the other seventeen physicians. This agreement is shown in Table 11.

Table 11 Difference Between One Physician's Judgment and the Criterion Formed by the Arithmetical Average of the Judgments of the Seventeen Other Physicians

Item in Physical									Physi	cian								
Examination	A	В	C	D	E	F	g	H	I	J	K	L	M	N	0	P	Q	R
Previous Diseases. Family History Lungs Heart Teeth Hearing Hearing Hearing  Fonsils  Posture  Abdomen  Abdomen  Thyroid  Blood Pressure  Blood Pressure  Cervical Glands  Reflexes  Musculature  Face  Hair  Other Diseases ,	16 71291113419111871057701	335615458372792782343992632	647185818438111614035219	22131512222413117741066412	23712012424301319501526	11850247347777437462107430	79219275612376055201508	16 27 7 1 2 8 1 2 6 2 2 4 5 6 3 2 8 4 9 11 2 2 2	31011723062238223303721	75612539864729730225274	11 971 1431 9496 9110 2916 5415	6321211532410215211473156636	8581246277881225181114111	215121252676111175231112	11 2 5 12 3 4 4 7 10 4 4 11 14 4 17 4 12 1 8 8 0 2 11	40202464378833440529534	61041614758119731796144437	13 11 2 1 0 4 0 18 8 1 7 19 3 15 5 10 0 14 0 15 15 15 16 16 16 16 16 16 16 16 16 16 16 16 16

Another point of interest in commodium with this rating is to note the specific disc; sements which each physician had with the other sementeen physicians. This agreement is shown in Table 11.



To portray more graphically the values of the judgments of these eighteen physicians, and to reveal the weights used, the following table is presented.

Table 12 The average Score of Eighteen Physicians on Each of the Twenty-Three Items in the Medical Record

Organ 1	Mean Value	Value Used	Organ	Mean Value	Val ue •Used
Heart	43	22	Weight	18	10
Vision	38	20	Posture	16	8
Lungs	37	18	Family History	15	8
Tonsils	35	16	Musculature	14	8
Thyroid	32	16	Reflexes	14	8
Hearing	29	14	Other Defects	14	8
Teeth	26	12	Skin	14	8
Blood Pressure	o eli	10	Cervical Glands		6
Nose	21	10	Feet	13	6
Abdomen	19	10	Hair	7	4
Previous				1 10	
Diseases	19	10			
Throat	18	10			

The reasons for the smoothing of the values on these weighted items comes from facing the practical side of the problem of dividing these figures on a five-point scale. Heart, for instance, with a mean value of 43, is to be divided into five points. It is much easier, and as statistically valuable, for practical purposes to use 22, as a half of 43, and do away with the decimal, than it is to use 22.5 and on down into a decimal system divided on a five-point basis. This will be true of all the weights distributed in a discrete series of five equal parts.

## Measure of Severity

The items to be inspected in the physical examination are already

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priority are collections included and at the second of the court office

set up. To this have been added the descriptive details under each item. To distribute the weights over these items is the next problem. If a student's tensils are enlarged and cryptic, and these terms have been checked, how much diseased or abnormal are they? In this connection, it would be well to remember what Gunnar Dahlberg & has said concerning this, and that the scale of deviations is continuous and not consecutive. In assigning weights for the relative degrees of severity, an arbitrary formula was followed. In the case of heart with a value of 22, for instance, 5 was assigned to the first degree from normal, two degrees as worth 11, and three degrees as worth 17, and four degrees as worth 22. These values were given with the hope that by definition and mechanical arrangement the physician can be helped in determining the eategory in which the condition belongs.

In the standard deviation the mean is average, with degrees above and below that point. In this case, however, normal means without perceptible defect. For that reason, a standard deviation technique cannot be used in evaluating deviations from normal, for there is nothing above normal expressed in the physician's negative vocabulary. In a consultation with Dr. Truman L. Helly of Harvard University, he suggested, after examination of the problem, that an arbitrary device of equally spacing weights would probably yield as good results as his formula for treating trumcated curves.

After the specific condition has been checked, the severity is circled by the physician and his assistants in one of the categories defined.

Winner Dahlberg, M. D., LL. D., Statistical Methods for Medical and Diological Students, George Allen & Unwin, Ltd., London, England, 1940, Chapters AA, AAL.

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The distribution on a five-point scale of the weights for the seriousness of the defects is found in Table 13.

Table 13 Items Weighted as to the Seriousness of Defects

Organ	Normal	Fair	Poor	Treatment Recommended	Treatment Urgent
Heart	0	5	21	17	22
Vision right	. 0	53355		8	10
Vision left	0	3	55998	8	10
Lungs	0	5	9	14	18
Tonsils	0	5	9	11, 11, 12	18
Thyroid	0	4		12	16
Hearing right	0	2	4		7
Hearing left	0	2	4	5	7
Teeth	0	3333333	6	5 5 9	12
Blood Pressure	0	3	6	9 8	12
Nose	0	3	6555544		10
Abdomen	0	3	5	8	10
Throat	0	3	5	8	10
Weight	0	3	5	8	10
Posture	0	2	4	6	8
Musculature	0	2		6	8
Reflexes	0	2	4.	6	8
Other Defects	0	2	4	6	8
Skin	0	2	4	6	8
Cervical Glands	0	. 5	3	5	6
Feet		2	3	5	6
Hair	0	1	4443322	665533	4
Face	, 0	1	. 2	3	4
Previous Diseases, &		D. 1(X			
Family History	1939 1 100		1		- 1 1 2 - 1

a/ 1 for each disease recorded.

Administration of the Physical Examination Record

The Physical Examination Record has been so arranged that the items appearing on the right-hand side of the page are to be examined and recorded by the physician. Those on the left-hand side, with the 1/ Figure 1.

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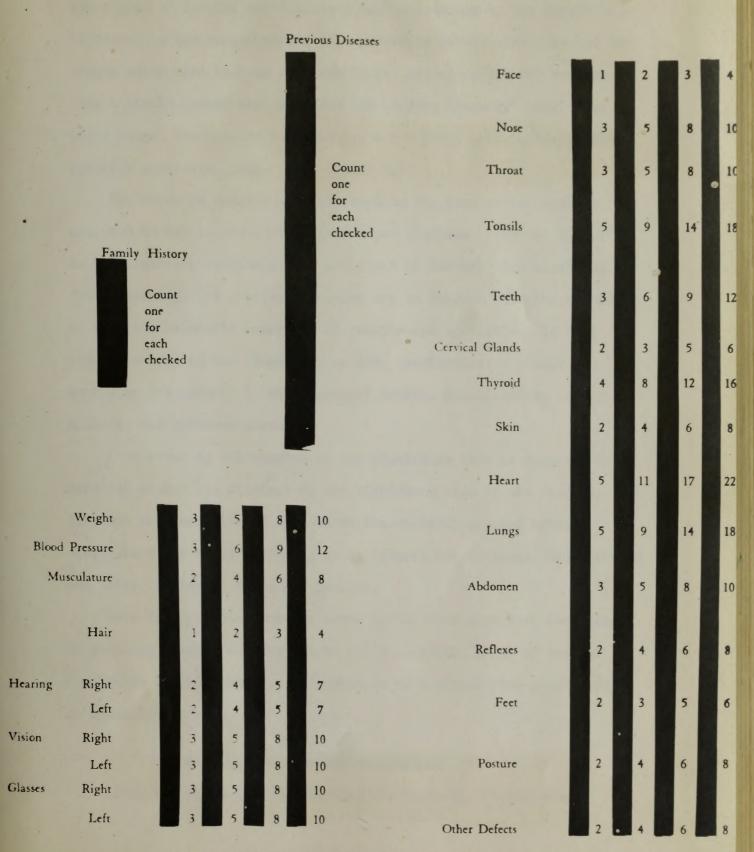
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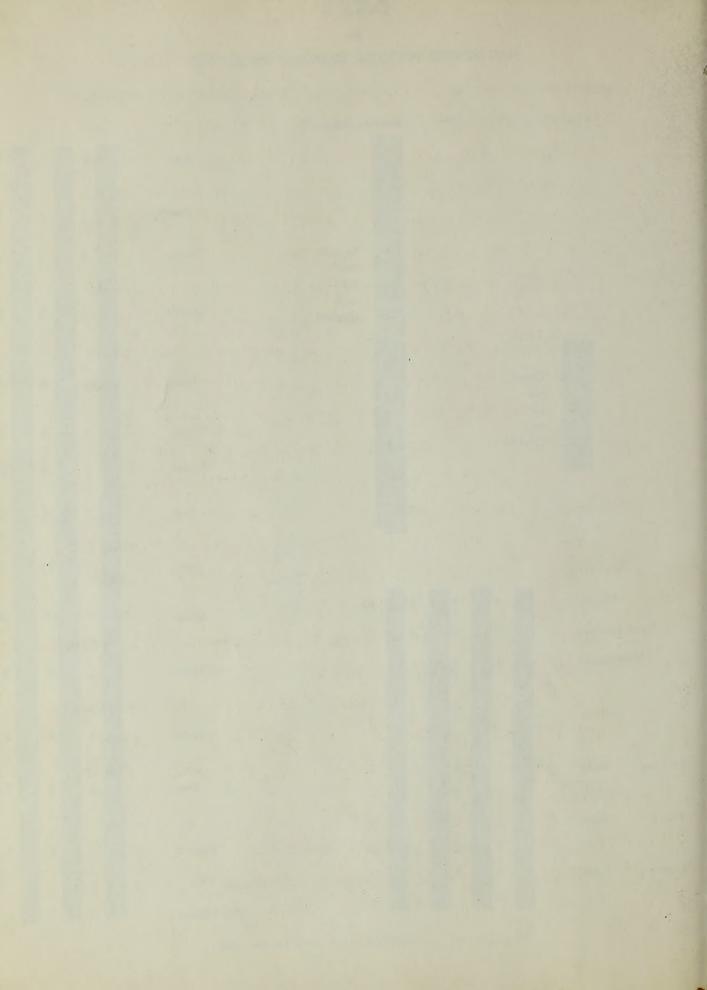
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## MAC DONALD PHYSICAL EXAMINATION RECORD



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exceptions of eye and ear diseases, may be examined by the physician's assistant or the school nurse. The record is so arranged that but two simple marks need be made for each item: normal conditions require only a circle around the dot under the heading "Normal;" conditions below normal are circled accordingly, and a check mark indicates the specific condition found. (See Figure 1.)

The nurse is usually able to complete the work in the section assigned to her in about five minutes per student. "General Health" is the student's opinion of his own state of health. Immunization, family history, and previous diseases may be learned from the records or from the student's memory if no records are available. If this record is used in the elementary school, questionnaires should be sent home for parents to check general health, immunization, family history, and previous diseases.

From seven to ten minutes of the physicians time is required to make and record his findings on the right-hand side of the record.

His work has been divided into three conveniently grouped areas:

first, head and neck, including skin; second, heart, lungs, and abdomen;
and third, reflexes, feet, and posture.

Both the physician and the nurse should make sure that each item is properly checked and the record fully complete, so as to secure a reliable medical rating. The omission of a single item results in an incomplete score.

Scoring the Physical Examination

After the physician has recorded his findings, circled the

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degrees of defect, and written any recommendations for specific cases, the form is ready to be scored. The key (page 42) is laid over the form, which has been circled, and the figures to the right are added, giving a raw score. To give these scores meaning, medical norms have been computed for 1,674 male students and 1,899 female students, ranging in age from fourteen to thirty.

#### How the Medical Norms Were Made

The next step in computing the efficiency of this physical examination record is the securing of age norms so that a certain student's medical rating may be compared with the average medical rating for persons of his age and sex.

Table 14 Frequency and Percentage of Defects Found in This Study for Men and Women

	lie lie	n	Homen		
Score	Frequency	Percentage	Frequency	Percentage	
0 - 4 5 - 9 10 - 14 15 - 19 20 - 24 25 - 29 30 - 34 25 - 39 40 - 49 55 - 59 60 - 64	30 171 257 317 305 243 143 102 56 31 17 6	2 12 14 19 19 14 86 32 1 0.3	38 136 236 343 318 272 216 133 75 49 37 8	2 7 11 18 17 11 11 7 4 3 3 0.6	

The average of the means for the boys is 22, and for the girls, 25. The average of the standard deviation for the boys is 11, and for the girls, 12.

degrees of deloce, and within my recommendations for apeciate once, the form is ready to be needed. The key (page 112) in lash over the for form, which has been circled, and the figures to the right are added, giving a rea more. In give these needed, maining, realized not 1,695 founds attached, reading in ago from fourtheed to the tenthem and 1,695 founds attached, reading in ago from fourtheed to there.

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These norms give averages for the physical measurement. They are comparable to the norms for mental and social measurements.

The scores for these students ranged from zero, which is perfect, to sixty-four. (See Table 14.) Turning these raw scores into percentage of rew scores, that the two sexes may be comparable, Figure 3 has been made to show the percentage of frequency of defects. That these percentages may be more significant at a glance, different colors have been used to distinguish between men and women.

The next problem demanding attention is a grouping of these figures. At once certain questions arise, Will it be necessary to place the averages for the boys of 15 and the girls of 15 in separate tables and so on through each age, or could four or five ages be grouped together, assuming that a boy of 11 has no more physical defects than a man of 21? One reliable statistical procedure to be guided by is to compare the mean and size of the standard deviation with the size and probable error for each group. If these items were similar for men and women, it might be assumed that the two groups were similar.

From Table 14, it is observed that the average mean for boys is 22, with a standard deviation of 11. For girls, the average mean is 25, and the average standard deviation is 12. Hence, it may be safely concluded that boys of 14 have as many defects and no more, by and large, as men of 24. And this is also true on all ages up to and slightly above 30. The same is true of women. However, since the average mean for women is 25, and the average mean for men is 22, it would seem necessary that separate norms be made for the two groups,—one

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From total and the standard deviation of il. For girls, one average mean to file and the artestand deviation of il. For girls, one average mean to file and the average events that its il. Hence, it may be easily events that bays of il have as many decisete and an enem, by and large, or all that its also true on all ages up to and all files, and the same of all enems to are the end at a same the end and the true of average the end all ages to the end all enter the end at the end at the end of the end of the end of the end to the end that the true of the end that the true of the end that the true of the end of

category for male and another for female, because the average female is found to have three points more defects than the male. While this is not true for each age, by and large, it is true for the entire group.

Table 15 Measures of Central Tendencies for the Physical Examination

Age	Number		Mean		Standard Deviation		Probable Error of Mean		Frobable Error of Difference,	
	Male	Female	Male	Female	Male	Female	Male	Female	of Means 2/	
14	62	721	25.3	25.2	10.4	12.8	0.9	0.8	1.0	
15	100		18.6	24.3		12.2	0.6	0.7		
16	171		22.0		11.5	12.5	0.6	0.6		
17	171		20.0		10.8	11.9	0.6	0.5	Control of the contro	
18	181		22.8		10.7	12.1	0.6	0.4	A COLOR OF THE COL	
19	204		23.7	21.9	11.4	10.4	0.5	0.5	2.4	
20	250		22.1		11.2	10.8	0.6	0.6	0.4	
21	123		21.7	22.5		10.5	0.6	0.6		
55	99	96	22.6	25.8	The second second	11.7	0.7	0.8		
23	80	1000	22.6		10.2	11.5	0.8	0.9	3.7	
51	72	49	23.7		10.0	10.7	0.8	1.0	4.0	
25-29	156	107	23.9	25.6		11.5	0.7	0.8	1.7	
30	65		22.7		12.1		1.0		93 16 17 2	
droup	16.200		22.3	24.7	10.7	11.5		1 1 1 30	Service Comments	

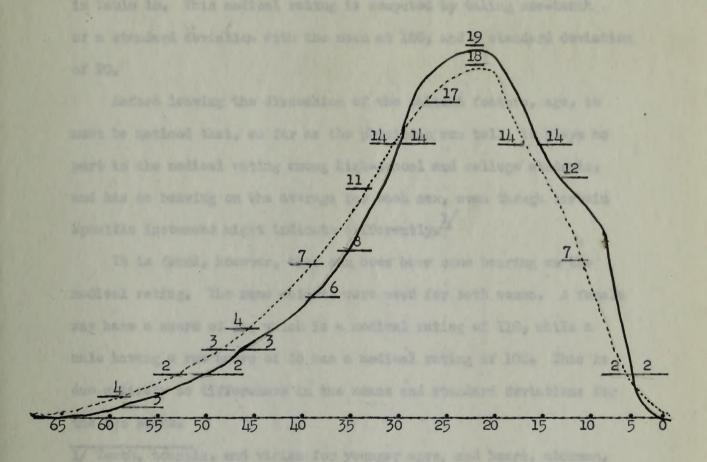
a/ PE diff. = The probable error of difference between the means of the males and the means of the females.

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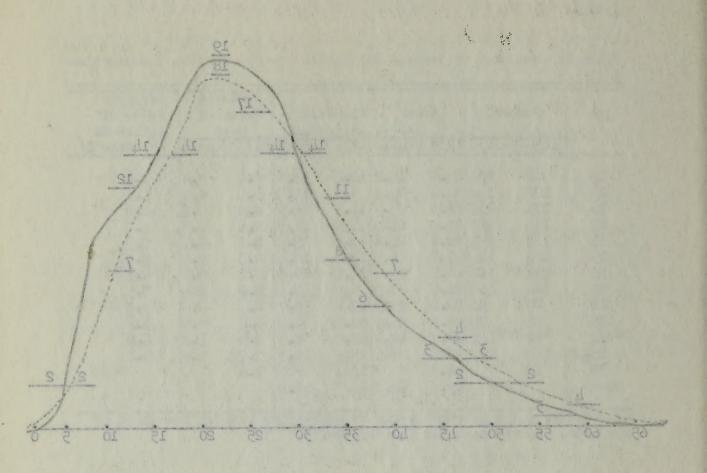


Continous line - Male

Broken line - Female

Figure 3 Graphic Representation of Measures of Central Tendencies.

Detail as given in Table 15.



Continous line - Male

Broken line - Female

Figure 3 Graphic Representation of Measures of Central Tendencies.

Detail as given in Table 15.

A graphic representation of these figures on an Otis Percentile Graph, showing the normalcy of the group, is given in Figure 4.

Medical ratings in terms of raw scores and percentiles are show in Table 16. This medical rating is computed by taking one-tenth of a standard deviation with the mean at 100, and a standard deviation of 20.

Before leaving the discussion of the salient feature, age, it must be noticed that, so far as the physician can tell, it plays no part in the medical rating among high-school and college students, and has no bearing on the average for each sex, even though certain specific instances might indicate differently.

It is found, however, that sex does have some bearing on the medical rating. The same weights were used for both sexes. A female may have a score of 18, which is a medical rating of 112, while a male having a raw score of 18 has a medical rating of 108. This is due entirely to differences in the means and standard deviations for the two sexes.

<sup>/</sup> Teeth, tonsils, and vision for younger ages, and heart, abdomen, feet, and posture for older ages are the defects most frequently found.

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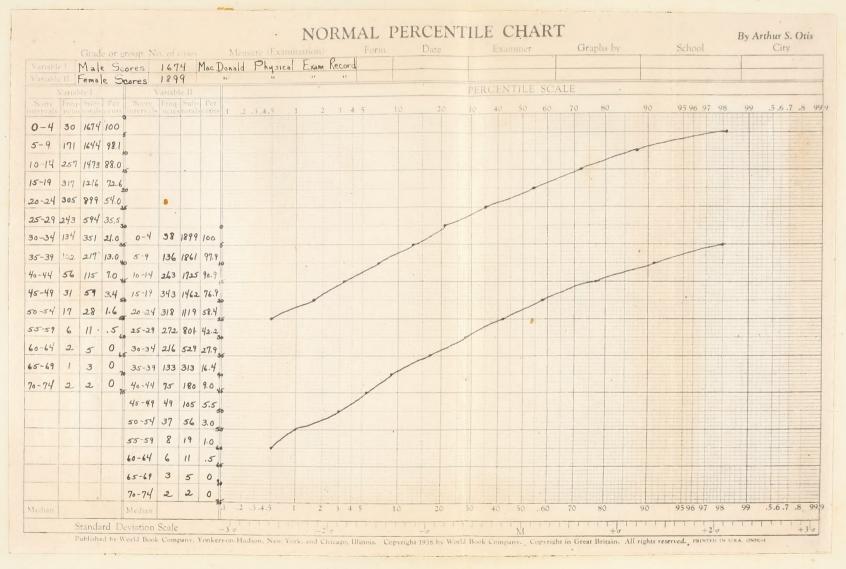


Figure 4 Graphic Distribution of Male and Female Scores.
Detail Given in Table 16.



Figure 4 Graphic Distribution of Male and Fersle Scores.
Betsil Given in Table 16.

Table 16 Raw Scores, Percentiles, and Medical Ratings for the Physical Examination Record

	Men			Women	
Score	Percentile	Medical Rating	Score	Percentile	Medical Rating
0 1 2	99•9 99•8 99•8	14e 140 138	0 1 2	99.8 99.7 99.6	170 175 177
345	99.6 99.1 98.2	136 134 132	345	99.li 99.0 98.0	138 136 134
6	97.4	130	6 7 8	98.0	134
7	96.0	128		96.0	132
8	94.0	126		95.0	130
9	91.0	124	9	93.0	126
10	88.0	122	10	91.0	126
11	86.0	120	11	89.0	124
12	63.0	118	12	87.0	122
15	81.0	116	13	87.0	122
14	77.0	114	14	80.0	120
15	72.0	112	15	77.0	118
16	72.0		16	74.0	116
17	70.0		17	70.0	114
18	66.0	106	18	67.0	112
19	58.0	106	19	63.0	110
20	54.0	104	20	58.0	108
21	51.0	102	21	58.0	108
22	48.0	100	22	52.0	106
23	43.0	98	23	49.0	104
25 26	39.0 35.0 35.0	96 94 94	2i, 25 26	45.0 42.0 40.0	102 100 98
27	29.0	92	27	37.0	96
23	27.0	90	23	54.0	94
29	24.0	88	29	34.0	94
30	21.0	86	30	28.0	92
31	19.0	84	31	26.0	90
32	19.0	82	32	23.0	88

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Table 15 (Concluded)

	hon			Women	
Soore	Percentile	Medical Nating	Score	Fercentile	Medical Rating
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36 37 38	12.0 11.0 9.5	74 72 70	36 37 38	17.0 13.0 12.0	32 80 73
39 40 41	8.0 7.0 7.0	66 66 66	39 10 11	11.0 9.0 0.5	76 74 72
13 13 14	6.0 5.5 4.5	88	13	8.0 7.0 7.0	70 65 68
15 16 17	3.5 3.0 2.6	53.55.5±	45 46 47	5.5 5.0 4.0	66 62 62
148 149 50	2.2 2.0 1.6	200	149 50	3.7 3.5 3.0	60 58 56
51 52 53	1.0	141	51 52 53	2.4	5l; 5l; 5e
\$4.55.50 \$4.55.50	0.7 0.5 0.5	39 56 36	N 55 56	1.2	50 40 46
57 56 59	0.4 0.3 0.3 0.	34 32 30	57 50 59	0.8 0.7 0.7 0.5	14 42 42
60	0.8	23	ස	0.5	40

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## Grouping the Scores for Comparability

That those medical ratings may be comparable to the ratings on the report cards sent home to the parents, Table 17 is presented. It converts the medical scores into the same language as the teacher's mark on the report card, namely, A, B, C, D, E.

Table 17 Letter Symbols with Their Scored Values for Both Men and Women

Health Report Rating	Medical Rating for Men	Report Rating	Medical Bating for Women
A B C D D D B C D B C D D B C D D B C D D B C D D D B C D D D D	142-126	A	114-128
	124-110	B	126-114
	108- 94	C	112- 86
	92- 66	D	84- 68
	64- 0	E	66- 0

While A, B, C, D, and E would be familiar to parents, the simple gradations used on the Physical Examination Record, such as normal, fair, poor, treatment recommended, treatment urgent, are still more significant. Too, if these descriptive terms could be placed in a graphic form, it might emphasize the relative value and strategic significance as the physician sees them, and be an effective means of motivating the parent to have the defects remedied.

Persons with ratings above 100 will have fewer physical defects than the average person. One hundred is the pivot from which
the medical rating is calculated. A person with a score above 100
may not be without remediable defects, but the examination as a whole
indicates that regardless of such, his general condition is above

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Thet those medical ratings may be compared to the ratings of the report cards sent have to the persones, Table II is presented. It converts the medical sector into the case language or the teacher's ment on the report card, ranely, 4, 5, 0, 0, 1.

India IV Letter Symbols with their decred values for Both Hen and

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## PHYSICAL EXAMINATION RECORD INDIVIDUAL PROFILE

Medical Rating

Sept., 1937

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	HEART					
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	REFLEXES					
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PHYSICAL EXCAMINATION RECORD

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average. Medical ratings range from 28 to 142. Ratings above 110 are above average.

The Medical Rating as a Permanent Record

The Physical Examination Record is a sheet 16 by 112 inches in size and perforated down the center. The left side of the perforation is shown in Figure 1, and the right side in Figure 5. The individual profile may be sent to the parent with the school physician's recommendations. This report should be an aid in securing cooperation for the correction of defects. When this profile is torn away from the original Physical Examination Record, there is left a series of circled scores placed there by the examining physician. When these circles are joined together by connecting lines, the institution has a profile even more detailed than the one sent to the parent, which may be filed with other school records for each student.

## Reliability of Norms

The next problem is to see how closely physicians agree in their observations on the same patient. In other words, how reliable is a test of this type? In attempting to answer this, the services of ten physicians on the courtesy staff of the Boston City Hospital were secured. Each of these physicians agreed to examine the same ten students. Each student was thus examined ten times, and each physician made ten examinations. This made one hundred examinations in all. The coefficient of reliability on the split-half method for these ten physicians was 0.89, and when developed by the Spearman-Brown

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prophecy formula, became 0.92. These physicians were classified into groups A and B by averaging their total scores. The ratings given by one group of five doctors was matched by a similar rating of the second group of five doctors; thus, the ratings were placed in two separate groups. This showed the extent of diagnostic agreement of these ten doctors on ten different student-patients.

Table 18 Coefficients of Reliability and Probable Errors of Ten Physicians on the Medical Ratings of Ten Patients

Organ	ficient liabili	Pro	Probable Brror				
Abdomen Tonsils Reflexes Thyroid Heart	18 33	•95 •95 •90 •89 •87 •85	1 16	•01 •02 •03 •03 •03 •05			
Lunge Foet- Skin	36	.85 .77	20 20	•04 •23			
Face Teeth Posture Throat Nose	7	.76 .76 .72 .68	2 5	.07 .08 .08 .09			
Cervical Glan	nds	•54	6 12	.13			

The next step was to ascertain their agreement, or lack of agreement, on each item on each of the ten students. Breaking down this total score into individual items, the results obtained are shown in Table 16.

<sup>1/</sup> Henry F. Carret, Statistics in Psychology and Education, Longmans, Green and Co., 1926, p. 209.

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Table 19 Average Deviation of Ten Physicians on Ten Students for Fourteen Items on the Physical Examination Record

Item	Physician Group	1	2	3	14	5	tude 6	nt 7	8	9	10	Average Deviation
Pace	A B	0 2	76	06	6 5	0	7	7	9 5	7 12	0	•67
Nose	A B	6 16	8 3	99	16	6 9	0 6	0	0	0	0	.36
Throat	A B	11 9	0	00	0	0	16	8	22	0	0	•31
Tonsils	A B	42 59	50 50	0	50 147		61	146	33 51	0	0	1.00
Teeth	A B	42 36	36 36	9	18 30	99	12 30	45 27	27 60	6 3	33 30	.76
Cervical Glands	A B	7 2	3 8	0 2	6	9	2 4	5 2	2 5	0	0	.25
Thyroid	A B	8 8	0	0	0	0	40	14 12	0	20 16	0	.22
Skin	A B	18	8	8	2 0	0	6 8	11,	6 10	16	0	.46
Heart	A B	43	0	00	0	0 0	38 27	61 71	50	67 78	0	•91
Lungs	A B	0 10	0	0	0	0	0 0	9 10	0	0	0	.61

Table 19 Average Deviation of Ten Physicians on Ten Students for

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Table 19 (Concluded)

	Physician				3,00		tude					Average
Item	Group	1	2	3	4	5	6	7	8	9	10	Deviation
Abdomen	A	0 3	0	0	0	15	0 3	0	0	0	0	
	В	3	0	0	0	15	3	0	0	0	0	.19
Reflexes	A	4	0	0	0	0	10	12	0	18	0	The same of
	В	2	0	0	0	0	10	12	0	18	0	•54
Feet	A	10	10	2 0	6	4 8	47	19	0	6	0	
	В	8	8	0	6	8	7	13	0	0	0	.50
Posture	A	22	18	0	2 2	0	2	16	4	0	0	
	В	14	16	0	2	0	14	22	2	0	0	•75

A review of Tables 18 and 19 reveals first that in diagnosing the difficulty, that is, in checking the specific condition, the physicians had very little disagreement. Table 18, however, reveals that the degrees of severity—the condition circled—were in greater disagreement. Treatment is the thing over which doctors disagree, and not the diagnosis.

#### Recapitulation

In recapitulating the various steps used to produce the physical examination record, its arrangement, its weighting, and its interpretation, the writer is forced to the conclusion that, although the mechanical arrangement of the items inspected, their sub-heads, the

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A review of Tables IS and IS reveals first that in discreting one difficulty, that is, in discring the specific condition, the physicians had very little disagreement, rable 18, however, reveals that the degrees of severity-the condition disagreement in greater disagreement. Treatment is the transport which decrees disagreement.

## Resept fullstion

In receptionalist the various steps used to preduce the physical extendestion record, its arrangement, its voluntary, and its interprotection, the writer is forced to the conclusion that, although the mechanical arrangement of the Itoms inspected, their sub-insue, the

device for determining the degrees of severity, and the profile and its interpretation have been of some value, the lack of agreement on the part of the physicians in assigning the weights for each item has been too great for reliable results. We must look to some new device in order to interpret the medical examination more reliably.

Before this study suggests a better method, the writer proposes to discuss the efforts made by three physicians to place a numerical score on the Physical Examination Record.

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#### CHAPTER IV

# COMPARISON OF FOUR EFFORTS TO PLACE A SCORE ON THE PHYSICAL EXAMINATION

Previous studies of physical examination records reveal three attempts to place a numerical score upon the physical examination record. To compare the findings of these three workers-Deaver, I have Park, I and Lyle I --with the findings of this study means to review some eighty pages of descriptive material, consisting of definitions, weights ranging from one-half a point to one hundred points, and the exceptions to any criteria set up for the evaluation of any item or any group of relative items.

In making a comparison between the weights as given in Chapter III and the weights found in the studies made by the three physicians cited, there is a difference in their values. The studies of Deaver, Hyde Park, and Lyle each represent the judgment of one physician. The weights in this study, however, are the results of the judgments of eighteen physicians. While the statistics of this study do not substantiate its weights being eighteen times more reliable, yet it does represent the pooled judgments of eighteen physicians.

For facility and clarity, the following seven tables have been arranged with the relative weight of each of the items under discussion.

I/ G. G. Deaver, Motivating Physical Examinations, Y. M. C. A. Press, Chicago.

2/ E. B. Lyle, Master's Thesis, Boston University, 1936.

3/ Ibid.

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Comparison of Four Studies on Vision and Hearing

zero appears, the condition has not been weighted. This study, for instance, has attempted to measure only the ability to see and hear. The diseased conditions and abnormal conditions resulting from disease are not measured unless they interfere with the processes of seeing and hearing. Since the weights for the first three investigators—Deaver, Hyde Park, and Lyle—have been based on 100, they should have equal weights, providing the experience and judgment of

Table 20 Comparison of the Studies of Deaver, Hyde Park, Lyle, and MacDenald on Items of Vision and Hearing

Item	100	Total Score	100	252
	Deaver	Hyde Park	Lyle	MacDonald
Vision, distant Vision, near Astigmatism Vision corrected Form	1 3	1-3 1 a/ 2 1 3	2-5 2-5 章-1 0	6-20 6-20 b/
Color vision Muscle balance External affection Pupils	2 3-2 s 1-3 3	2 2-2 1-3 3	2-5	0
Conjunctiva Cornea Iris Lens	1-3 3 2 1-3	1-3 3 2 1-3		0
Rotina Hearing Ear canal	3 1-3 1-2	3 1-3 1-2	-1 0	0 4-14
Sar drums Veber Test	2	1-2	€+1 0	0

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the physicians are equal. The weights used by the eighteen physicians should, on the other hand, be approximately two and one-half times greater, since its total score is 252. This is the theory, but as one follows through all the items, it will be found, however, that it does not hold true.

As far as the writer knows, Deaver's study is the first study made in which an attempt is made to place a numerical score on the results of the physical examination. Myde Park's study is a revision of Deaver's technique, and byle made her study ten years or more after these two were made. This study comes some six years later, and its weights are the judgments of several physicians. Each new study seems to increase the value of each item inspected. For example, the values given to the item of vision increase as follows: Deaver, & to la; Myde Park, 1 to 3; Lyle, 2 to 5; and NacDonald, 6 to 20.

The significance of these increases in scores is not in the differences in the values given to each item by the physicians, but ratherin the spread on each item sufficient to differentiate a judgment on any one item.

As has been pointed out, impairments are on a graduated scale of intensity. With a differential of 14, as in the case the item of vision, in this study it is possible to differentiate with greater finesco than with the scale of 1, as in Deaver's study.

As this study was originally planned, no provision was made for an ovaluation of eye and ear diseases. It was felt that the function of the eye and ear was all that was necessary. However, the more The start of the start and the start of the start and start and seed of the start start of the start start and seed that the start and seed that the start and seed that the start of the s

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recent survey (See Chapter V) has found it advisable to include these items.

Comparison of Ness, Throat, and Mouth

Table 21, dealing with nose, throat, and mouth, forms a second legical grouping. As in Table 20, there is a difference in the weights as given by the four investigators, and again the gradual increase in differential in weights is noted. The impairment of the much-talked-about tensils, for example, has varied in importance as the four studies were developed. Dr. Lyle developed a differential in weights over the other two previous investigators, and if the same proportion of weights as in Deaver's study was held, this study would set the value at 25-10, but the eighteen physicians said the value should be 5-18. Because of this lack of agreement, it seems that some better method might profitably be employed to weight the defects found.

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Table 21, dealing with the mean thrust, and mostly from a sound of the man adopted at an appropriate to a deplete the mean and again the methods leaved to the mean and again the mean and again the gradual leaved to the mean and again and again the gradual of the mean and again the deplete and additional of the mean and additional and additional and the first three ways about the leaved and additional additional and additional additional and additional additional and additional additional and additional additionaly additional additional additional additional additional addition

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Table 21 Comparison of the Studies of Deaver, Hyde Park, Lyle, and MacDonald on Items of Nose, Throat, and Mouth

Item	Deaver	Hyde Fark	Lyle	MacDonald
Septum	1-3	1-3	1-2	3-10
Pharynx	1	-1	2	3-10
Larynx	*	1	1	5-10
Tonsils	1-3	1-3	2-5	5-20
Adenoids	2	2	1-2	1
Jinuses	1	1	1-3	1
Teeth	1-3	1-2	1-5	3-12
Tartar	1-3	1	-	0
Gums	1-3	1-3	1-5	0
Tongue Breath	1 1 1000	to di come o	9-1	0
Hay Bever	7	1	8-1 8-1	7

Items in the physical examination pertaining to weight, posture, musculature, and the extremities are given in Table 22. Some items in this group have better agreement than was witnessed in the two preceding tables, Tables 19 and 20. Tables from which the deviations in the object measures were scored will be found in the appendices.

Table 22 Comparison of the Studies of Deaver, Hyde Park, Lyle, and MacDonald on Items of History, Posture, and Extremities

Itom	Doaver	Hyde Park	Lyle	MacDonald
Age, Ht., Wt.	1-3 3-3 1-3	1-3 1-3 1-4	1-5 1-2 3-1	3-10 2-8 2-8
Kyphosis Lordosis Scoliosis Knees	0 1-3 2 a/	1-3 1-3 0-1 a/	1-5 1-5 1-5 0-8 b/	2-8 2-8 2-8
Feet: Longitudinal arch Transverse arch	1-3 1-3	1-3	1-3 1-3	2-6
Toes Joints	1-3	1-3	1-3	2-6

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Table 2D Comparison of the Standar of Meaver, hele lers, Lyle, and Indicating

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It is evident from a study of this table that in recent studies posture is receiving much more attention and more value is given to it. Kyphosis was not weighted by either Deaver or Hyde Park, and lordosis was not weighted by Deaver. Dr. Lyle has given all three common postural abnormalities considerable weight, nearly as much weight as vision, tonsils, or teeth. The physicians of this study, however, do not value these three conditions of posture as highly as tonsils or teeth and not nearly as important as vision. There is very good agreement on the value of feet in all four of the studies.

Table 23 deals with items which have to do with the circulatory system. The reader is again referred to the appendices for the tables of deviation on blood pressure, which were used in each study.

#### Comparison of Circulatory System

Table 23 Comparison of the Studies of Deaver, Hyde Park, Lyle, and MacDonald on the Items of the Circulatory System

Item	Deaver	Hyde Fark	Lyle	MacDonald
Pulse	1-2	1-3	1-3	0
Pulse-exercise	0	0	1-3	0
Blood pressure				7 30
within 15 of norm		1	1	3-12
within 25 of norm		2	2	
within 35 of norm Heart, functional	1-3	0	1-2	
Heart, organic	1-3	1-3	5-100	5-22

It should be pointed out here that the philosophy apparently behind Lyle's weights was based not only on a total score of 100, but that any impairment might reach 100. On the other hand, Deaver In teach and read the story of this sails that is diven to the start of start of the start of th

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and Hyde Park evidently considered that the total score for all impairments should be 100. Therefore, Lyle might concluded that heart impairment ran from 5-100, while the other two investigators set from 1-3 as their value.

To illustrate: A case of rheumatic heart, in which the heart is greatly impaired, is the result of diseased teeth, tensils, and ears. Lyle counts all these impairments against heart, while Deaver and Hyde Park consider that the teeth, tensils, and ears will be counted off enough so that the total score will be sufficient to indicate the severity of the condition.

#### Comparison of Respiratory System

In dealing with the respiratory system, Table 24 reveals differences in the opinions of the physicians as to the value of the
items examined. It will also be noticed that one investigator regards
the use of the X-ray and fluoroscope to be necessary for recommendations
and judgments concerning the respiratory system.

Table 24 Comparison of the Studies of Deaver, Hyde Park, Lyle, and MacDonald on the Respiratory System

Item	Deaver	Hyde Park	Lyle	MacDonald
Chronic bronchitis	2	1-3	1-3	1
Asthma	0	1-3	1-3	1
Recurrent pleurisy	2	1-3		1
Puberculosis				
active	3	1-3	0/	1
quiescent	3	1-3		1
arrested	3	1-3	5-100	1
Empyema	2	1-3	3	1

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and judgments concerning the respiratory system.

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In Table 24, the weights given for this study are less than those given by the other three investigators, because this study represents a history only. It has been found that an active, quiescent, or arrested case of tuberculosis needs clinical treatment, which is not afforded by the cursory examination given the high-school or college student. Therefore, only the history of respiratory disturbances is called for.

Comparison of the Items of Abdomen and Kidneys

In dealing with abdomen and kidneys, this study has not attempted to evaluate certain abnormalities which are found only by the clinical or extended diagnosis. The cursory examination in the American school of today seldom affords time or facilities for liberal diagnosis, except in those cases in which history or inspection indicate that further investigation is needed. Therefore, abdominal support, kidney diseases, and rectal disturbances have not been evaluated for they demand a separate report.

Table 25 Comparison of the Studies of Deaver, Hyde Park, Lyle, and MacDonald on the Items of Abdomen and Kidneys

Item	Deaver	Hyde Park	Lyle	MacDonald
Abdominal support	1	0	1-1	
Ptosis	1	0	2-1	3-10
Tenderness	1-3	1-3	1-5	5-10
Kidneys	1-3	1-3	5-100	
Rectum	2	2-3	1-3	
Hernia	2-3	2-3	2-3	3-10

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As in the previous five tables, weights vary according to the individual experience of the physician.

Comparison of the Items of the Nervous System

The nervous system of the American school child is receiving more attention from educators. In many modern elementary and secondary schools, much emphasis is placed on reading and speech. This attention to the nervous system goes beyond the physical examination, which generally attempts to examine reflexes, particularly the patellar reflex.

Table 26 Comparison of the Studies of Deaver, Hyde Park, Lyle, and MacDonald on the Items of the Nervous System

Item	Deaver	Hyde Park	Lyle	MacDonald
Patellar reflex Tremors, Monberg,	3	1-3	1-3	
Gait, Speech, Reflexes	3	3	5 up	2-8

Again, the present study has not attempted to evaluate those items which require extended observation or laboratory follow-up, such as speech, tremors, and gait. If the examining physicial feels that extended observation or laboratory follow-up is necessary, a special report should be made on this.

A Further Study of Agreement on the Results of the Physical Examination

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physical examination should be studied at this point. In one particular school, the examining physician 1 placed a grade on the student's physical examination record form immediately upon finishing the examining of that student and before the key score had been computed. This physician attempted to sum up her findings on the student on a five-point scale: average, above average, superior, below average, and poor. In doing this, she felt assured that she could distinguish only between average, below average, and poor, but could not distinguish between above average and superior. This same physician checked back upon her findings after having completed scores upon 431 students in this way. Her check-back revealed that she had not placed one student in the poor group. In other words, this school physician, while deliberately attempting to classify students on a five-point scale, was actually able to use only the three-point scale: average, below average, and above average. 2 The following scattergram illustrates the agreement between this physician's attempt as just cited, and the use of the key in this study.

<sup>1/</sup> Josephine Walworth-Furness, M. D. at Washington Missionary College, Takoma Park, Washington, D. C., 1940-41.

<sup>2/</sup> C. J. Chamberlin and D. F. Smiley, "Functional Health and the Physical Fitness Index", Research Quarterly, Vol. II, No. 1, Warch, 1931.

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Threaten Island Indon's Someren Quarterly, Vol. II, No. I. School Baroly, 1931.

	A	В	C	D	E	
Physi- cian's	0	3	32	21	16	Above Average
cian's Scores	8	52	127	46	19	Average
	11	52	31	12	1	Below
	77	25	21	LC	1	Avera

Figure 6 Scattergram of One Physician's Evaluation on the Physical Examination Compared with the Key as Given in This Study (See Table 15.)

Lack of Agreement among Physicians Discouraging for Research Workers

We have obtained some agreement (C = .52) between the findings of one examining physician and the judgment of the eighteen other physicians, when the same reporting system has been used. This agreement is encouraging, and it may be felt that if the examining conditions can be standardized, if the objectives can be definite, and if the report form can be held constant, the physicians may agree even more closely on the results of the physical examination.

Although there is reason to feel that under some certain conditions, better agreement has been found, a discussion of the reasons for the present lack of agreement should be profitable. It will be remembered, that for the purposes of this study the eighteen physicians scored one item against one other item at a time. Surely, it would be easier to rate one item against one other than it would

<sup>1/</sup> C's computed on five variable problems are approximately equal to the value of r. While those with only three variables have as a maximum score only .816. H. E. Carrett, Statistics in Psychology and Education, Longmans, Green & Co., 1934, p. 200.

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be to rate one item against twenty-three. However, we found that the agreement of these men was not too consistent (See Table 10) except on the items at the extremes -- heart, lungs, and hair. Now, why if we compared one item at a time, could not the physicians agree? Here is the answer. Each item inspected takes on a different value in proportion to all the others when it becomes impaired. It is necessary for the physician to inspect the impairment of the item considered before the weight can be established. To illustrate: A student's tonsils may be infected. They may be enlarged and cryptic. and be so marked on the record, but they may not be doing the damage that some other student's tonsils are doing, which are marked in the same way but accompanied by a rheumatic heart murmur. The amount of disability caused by the first tonsil impairment may be slight compared to that caused by the latter. Yet without an examination, it is not possible to tell just what the weight for tonsils should be. Therefore, to ask a physician or anyone else to compare one item with another, without actually seeing the patient, is asking an impossibility. Therefore, it seems necessary to use some other method to obtain a correct evaluation of the items on the physical examination.

It appears from this data to make no difference how much effort is put forth to compare one item with another. Unless the particular patient is at hand, this method of comparison is not satisfactory. There was little more agreement with the eighteen physicians among themselves than with one compared with the other seventeen. It is

to do note and about the thinky property . Indicate the both to drawn on (2 light at the columns . Large land, and large and large. and it was been blown with a threat one was one will you Joseph Pill a no aming Defengage back Aball . Taken a back at avoil Takens ol . Derive is proposed to what when the bost of the party of the colors in necessary for the physician to impost the implications of the ince a today to the country on the accordance of our binder out out to the contract a stadent's tearils hay be interted. They may be enlarged and truction egonal our priot of deg gas vote dut strooms out as todays on ad hea to fine and constant freed all materials belongered in the constant -one of before affects not bright and finds dank first of afficiency lore, to see a glyciation of tenent of at lo poster oft two sets adding a to our solution of an interest of the section of the sect restanting in the time on the paying of a motivative to be

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not the judgment of the physician that is at fault in this instance, but rather the method.

If a comparative study will not serve the purpose, what method will be more promising? This is the topic of Chapter V.

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will be note presently This is the topic of Capter V.

#### CHAPTER V

A NEW METHOD OF EVALUATING THE MEDICAL EXAMINATION

Early Definitions of the Degrees of Severity

Since the first printing of the Physical Examination Record appeared in 1937, many things have been called to the attention of the writer. In the first place, a four-year record was attempted. This proved impractical because it was not "blind," as recommended heretofore by Britten.

a serious condition referred to a whole picture and not to just one item. Acute did not mean what the writer anticipated it would mean, -- a degree of greater impairment than serious. But rather, to the physicians, it means the critical stage of an illness. The terms, which were to be used successfully in the Physical Examination Record, must be changed to meet the idea of great impairment generally needing treatment.

## Revisions of Early Definitions

To meet the need, new terms were used. Serious was changed to treatment recommended; acute was changed to treatment urgent. These new terms appeared to be an improvement, and they were used exclusively for three years. During these three years, it was found that the percentage of impairment had become noticeably less. The physicians evidently were not marking conditions to be treated as they had done IV Rollo H. Britten, Public Health Reports, July 17, 1931, Vol. 46, No. 29.

#### T OF THE PARTY

A NEW PORTING OF DESIGNATION OF PERSONS OF BESTERRY

Since the direct printing of the inputed facilities become appeared in 1957, many things have been called to the objection of the writer. In the first place, a four-year report was attempted.

Into proved imprecious because it was not "blind," as reconstant between the was not reconstant.

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under the original scheme of terms used on the Physical Examination Record. An inquiry into some possible reasons for this change was made. Several physicians, after being shown their trends, cited such particular cases as total deafness in one ear, for which no treatment was possible, and therefore no justification for marking anything. The citation of a few such cases by some of these examining physicians clearly showed that the term "treatment urgent" did not meet the need for a term to show greatest impairment.

#### Observations of Physicians' Thinking Habits

During this same period of inquiry, observation was made of the thinking habits of physicians, as these habits affected the marking of the Physical Examination Records. There seemed to be a different classification in their minds, but they were expressing themselves in the five terms provided, or were attempting to do so. As this fact was studied, it was also found that on each item the physician was interested in its normalcy, and in its impairment. Then, if impairment was great, it should be corrected or treated. It was evident that the physicians were thinking in three categories—normal, impaired, treatment—but were endeavoring to express that thinking in five categories. To make a test of this, lines were drawn on the Physician Examination Record from between the notations "Normal" and "Fair," and between "Poor" and "Treatment Recommended," (Illustration follows) If the number of impairments would approach the original norms gathered from 5,000 students, then there would be reason to believe

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#### PHYSICAL EXAMINATION RECORD

#### by Edward Mac Donald

The Physical Examination Record is a statement of inspection of physical health for students of College, High School, and Elementary School ages.

It is a measure intended to assist school administrators, counsellors, teachers, and parents to more accurately judge the physical condition of their charges.

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RECOMMENDATIONS

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# PHYSICAL EXAMINATION RECORD

Name						-		School					
Age		S	ex					Grade		r	Date		
GENERAL:	HEALTH:	PRE	VIOU	S DIS	EASES			FACE: pale	()	Norm	Fair	Poor	Treat
E11	(							adenoid expression	( )				Rec.
	(					, ,		jaundice	( )	•	•	•	•
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	1age (				nt		1	NOSE: spur	()	of Williams			
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IMMUNIZA	TION:	n.						Transfer turbinate	( )				
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	ver (				lysis								
								TONSILS: absentenlarged	( )				
	(in past 7 yrs.) (							buried	2	11111110			
	(							cryptic	()	•	•	•	•
	100.00							inflamed	( )				
FAMILY H	ISTORY:							TEETH: tartar	()	And Land			
Cancer	(							cavities	( )	Walt of			
Epilepsy _	(	) Rh	eumai	tism _		( )		fillings	()	•	•	•	•
	(							diseased gums	( )				
					A CONTRACTOR OF THE CONTRACTOR			CERVICAL enlarged	()	Marine Service			
	(							GLANDS: fixed	( )	•	•	•	•
	osis(					( )		THYROID: nodular	()				
Other	(	) Otl	her di	seases			-	enlarged	( )	•	•	•	
							- 11	SKIN: dry	()				
HEIGHT in	inches						11	acne	()				
TDD.							-	rough	( )	•	•	•	•
							.	HEART: enlarged	()				
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		Norm	Fair	Poor	Trea	itment	. 11	murmurstone quality	2	•	•	•	•
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rough	()							sluggishexaggerated	()	•	•	•	•
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	Tert	•	•	•	•	•	-	cornsathlete's foot	$(\cdot)$				
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		720	/30	740	750		11-		-	• 1	•	•	
NURSE'S S	IGNATURE:	-			E 140		11	PHYSICIAN'S SIGNATU	RE-				

# PHYSICAL EXAMINATION RECORD INDIVIDUAL PROFILE

Medical Rating

					Date	
	Normal	Fair	Poor	Treatment Recommended	Treatment Urgent	
WEIGHT						
BLOOD PRESSURE		•				
MUSCULATURE	•			•		
HAIR						
HEARING		-				
VISION		4-1-				
FACE		•			•	
NOSE		•		•		
THROAT						
TONSILS						
TEETH						
CERVICAL GLANDS						
THYROID					•	
SKIN		•				
HEART		•				
LUNGS			•			
ABDOMEN	•	•				
REFLEXES			•			
FEET						
POSTURE	•	•				
OTHER DEFECTS						

RECOMMENDATIONS

the physician was thinking in three categories.

So, for the school years 1940-41 and 1941-42, lines appeared on all the Physical Examination Record forms in use. There was an immediate reaction from the examining physicians. The averages became more nearly like the original norm for the particular school examined. Not only was a more normal condition noted, but expressions from the examining physicians themselves indicated an ease in administering and a feeling of better judgment on their part.

All this summed up to two things: If the physician thinks in three terms about the condition of the items he inspects, it would be only multiplying error to ask him to interpret his findings on a five-point scale; and, if the terms used in any scale have one meaning to an educator and something different in medical nomenclature, one cannot define the categories, be they three or five, and expect to get satisfactory, meaningful results.

The problem then becomes: What designation may be used to convey the thought of the examining physician as to the condition of
the item under inspection? Also, how may this condition be interpreted
to the educator and parent?

A New Method of Marking Degrees of Defects

Since everyone has become conscious of the use of celor to

present many ideas to them, color designations were considered.

Traffic engineers have found satisfactory the responses of motorists

to the three colors regulating the signal system of traffic regulation.

See the Physical Examination Record with color which follows.

the physician was thinking in three detugories.

So, for the cased years 1940-41 and 1941-42, lines appeared on all the ingelent constiten keeped form in use. There was an immediate reaction from the examining physicians. The everages became nore mostly like the original norm for the particular school emmined. Not only was a more normal condition noted, but appearing the condition of the original physicians themselves indicated an eace in administering and a feeling of better judgment on their part.

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Singe everyone has become conscious of the use of noise to
present many ideas to these color designations were considered.

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to the Gree colors regularing the office of traffic regularies.

See the Physical Examination Mederd with color which relieves.

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GENERAL HE	ALTH-	PRF	VIOII	S DISE	EASES		FACE: pale	()	
							FACE: pale adenoid expression	}	
	(						jaundice		•
							dark circled eyes	( )	
						( )	NOSE: spur	( )	
Poor	(				t		deviated septum		
	12 1	Dia	betes			( )	enlarged turbinate		
MMUNIZATIO	N: Neg. (	, Dir	ohther	ia		( )	THROAT: discharge	()	
Diphtheria	Schick Pos. (						THROAT: discharge inflammation		•
Scarlet Fever .	(	) Inf	antile	Paraly	ysis	( )	TONSILS: absent		
Smallpox		) Ma	laria			( )	enlarged		
Typhoid (in	past 7 yrs.) (	) Me	asles			( )	buried		
Other	(	) Mu	mps _			( )	cryptic		
		Op	eration	n		( )	inflamed	( )	
FAMILY HISTO	ORY:	Ple	urisy			( )	TEETH: tartar	( )	
Cancer	(	) Pne	eumor	ia		( )	cavities		
Epilepsy	(	) Rh	eumat	ism		( )	fillings		
Heart	( )	) Sca	rlet F	ever .		( )	diseased gums	( )	
Kidney	(	) Tu	bercul	osis		( )	CERVICAL enlarged	()	
Mental	(	) Ty	phoid			( )	GLANDS: fixed		
Tuberculosis .	(	) Wh	oopir	ig Cou	gh	( )	THYROID: nodular	()	
							THYROD: nodular		
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coordination	poor ( )						hernia	( )	
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rough	()						sluggish(	( )	
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HEARING right	ht						FEET: flat	()	
							callous (	()	
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ly many	Maria de la companya della companya								
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Green indicates that condition in which there is no perceptible defect present.

Yellow indicates that condition in which defect is present but not in sufficient degree to need treatment.

Red indicates that condition in which defect is present and in a degree sufficient to require treatment.

#### PHYSICAL EXAMINATION RECORD

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The Medical Rating is to be interpreted similarly to the Psychological Examination. The first is a measure of physical condition, while the other is a measure of mental capacity.

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There is no confusion to motorists, aviators, locomotive engineers, or pedestrians, when they are confronted by a green, amber, or red light. No written definition or interpretation is needed or expected each time the color is used. So, on the Physical Examination Record form, green may indicate a satisfactory condition, under which a person might proceed freely, since no perceptible defects are present.

Amber or yellow could indicate that condition in which defects were present, but no in sufficient degree to interfere with body functions, and yet where one should proceed with caution. Treatment would rarely be necessary for this condition. Red could represent the condition in which defects were present and affecting body functions. Treatment would be advisable, and in some cases urgent.

These categories have been so described as to allow the physician to indicate his interpretation of the condition found, but still tell the layman the true findings in terms which he can understand.

However, even yet, the educator is left without some means of presenting an accurate picture of the whole student in terms of what he can or cannot do in the school program. Althoughthere is very clearly pictured to him the condition of each particular item on the Physical Examination Record, yet what he might reasonably expect from the student in his relation to the school program is still the physician's responsibility. The record does not tell if the student may have free and full participation in all gymnastic activities or should be restricted; if the student may take on extra-curricular

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activities, or if his study program should be curtailed. If we use positive terms as has been suggested, the items which are most likely to affect physical condition should be readily recognized.

Work, industry of some kind, is a vital part oflife. Fitness for work should be another goal of physical examination interpretation.

The amount of school work taken, that is, the number of college hours permitted in the college, or the number of units in the high school, is also of importance. The Physical Examination Record should help in deciding the kind and amount of participation by a student in physical education. The usual report on physical vitality, or its lack, is the fourth item which should be told with at least some degree of certainty by the physical examination.

So far, the discussion has dealt mostly with those items which do not ordinarily appear on the physician's report of the physical examination. If these four items-work, classes, physical education, and health-can be defined to mean what achievement means to the educator, then the result could be a marking system similar to teachers' marks.

In order to represent the assets as well as the liabilities as found by the physician, a profile is suggested to present the report to the physician.

Interpreting the Physical Examination

To interpret the physical examination in the light of the objectives set up for this study is to define the conditions under which the results of this physical examination will be applied. To illustrate: worthicted, or at his other, program should no contailed. It so is possibly to street forms at interiors of the contailed to the street physical organization whould be required, industry of aces bland, is a vital part office. Pitness for work, industry of aces bland, is a vital part office interpretation.

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interpreting the Physical Bananation

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If it is necessary for a boy to do 20 hours of industrial work a week in order to maintain himself, can he take a full college program with his physical capacity? In one school, an arbitrary plan has been set up:

Table 27 Schedule of Industrial Labor and College Work Loads 1

Plan	Hours of labor	Hours of College Work
1	0	16
2	10-15	16
3	16-20	16
4	21-25	1/1
5	26-30	12
6	31-35	10
7	36-Lo	8

In view of the work schedule, the class schedule, the physical education program, and the health status of the individual, the following plan on a five-point consecutive gradation is given to assist the educator and the research worker in using the results of the physical examination as an instrument in the prediction of academic achievement or in providing a school program for individual students.

Using McCall's "T-score" method, weights may be given to the letters, and figures may be substituted; thus the educator is able to use Health in a regression equation, if the research worker chooses to place that much emphasis on health. It is hoped that by the use of the classification chart, teachers and school administrators may be come better acquainted with the health of their students, and physical educators may use the experience and judgment of the physicians, as well as other health classification charts, in their work.

1/ Washington Missionary College Bulletin, 1941-42, p. 26.

Level to necessary for a boy to do to home of industrial work a manufacture of the program would be suffered by a substance of the particular of the particu

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Hours of Ge	Bours of Labor	REIS
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delta becalle "Leaces" remied, weights may so given to the lotters, and offices any be substituted, thus the educator is able to use lies in in a remeasion equation, if the immension worker characters and the immension that by the use of the place that man emphasis on health. It is hoped that by the use of the classification thanks, because and accord administrators may be some better acquainfaction which the health of their students, and physical admenter may assist experience and judgment of the physicians, as well as other health classification charter in their work.

Westington Missionery College Delicing 1961-122 p. 26.

Table 28 Health Classification Chart

Grade	Labor	Classes	Physical Education	Health	Grade
A	Strenuous	Additional	Athletic	No perceptible defects present or defects corrected	A
В	Unrestricted	Enriched	Athletic	Defects present not affecting body functions	В
C	Moderate	Full	Recreational	Defects present not seriously affecting body functions	C
D	Restricted	Moderate	Supervised or excused	Defects present affecting body functions	D
E	Very restricted	Limited	As directed by physician	Needs care of physician	E

Directions: Give four grades, one for each of the four categories: Labor, Classes, Physical Education, Health. Note; These grades are given by the physician to assist the educator

in understanding the physical potentialities of the student.

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		ofdisquoroq of colors areason to be a second to be	Aminosia Aminosia	La Consol	acous	
	4	Poreots present not arresting body twisting		Boulting	Samo Tame	
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Labor, Classes, Thysical Education, Health.

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Criteria for Evaluation Health Potentialities of Students

In approaching the study of a precise technique for interpreting the physical examination, it needs to be understood that the physician's examination does not measure directly the physiological capacity of the individual. Indeed the measurement of general physiclogical fitness is the proper function of valid, reliable and objective tests of a more dynamic character. However, the physical examination when proper administrative techniques are used, does place the physician in a position to make expert judgments concerning the individuals; (1) degree of structural and organic soundness; (2) probably potentialities for participating in various types of activities. Five years of using the present Physical Examination Record has produced a standard in the minds of those who have tested their students by this method. But, when a committee (See comment on Table 35.) attempted to define that standard, some practical difficulties were encountered. Difficulty was experienced in accortaining the quantity and quality of potentiality implied in the upper limits of the four classifications studied. Discussion in the committee pointed to the necessity for being able to describe an average student before either the upper or the lower limits could be determined satisfactorily. It is hazardous to attempt to define average health and physical capacity even though that definition be put forth by an able group of physicians, nurses, and educators. A separate discussion on each of the four factors -- Labor, Classes, Mysical Education, and Mealth-did help the educator to understand the physical capacity of the student.

### Health

In the discussion on the health factor, the lowest physical limit

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was considered to be that which would enable a student to remain in school providing he is under the physician's care. The upper limit of physical condition was described as that in which the student has no perceptible defects present or any defects had been proviously corrected. The midpoint was then discussed and fixed at that condition in which there are defects present but not serious affecting body functions. There was much discussion on this midpoint, or the expected health condition of the average high-school and college student. A category above this average seemed to be that in which defects were present but not affecting body functions. The category below this average seemed best described as that condition in which defects were present in such degree that body functions were affected. The examining physicians stated that they could distinguish between these five determinants in the student's physical examination. The nurses affirmed that they could understand the physical conditions described in those terms. The educators felt that the profile describing the specific condition (See Table 29) together with the grade for the general physical condition was a decided help in the evaluation of the student's abilities.

# Physical Education

The medically-trained personnel of the committee expressed a hesitancy to evaluate physical education except in terms of prohibition of activity because of defects. This same personnel felt that they were not in a position, with their own methods and techniques, to prescribe a physical education program for students without defects. In the discussion on the physical education program, the committee agreed that the average student was unable to carry on the strenuous athletic program of inter-mural and inter-collegiate type that everyone likes to feel the average person could do if he wished.

provided to that I work of the property of a state of the color of the defects received for any defects that boing providents converted the at -describe process birt not not not to the bid philiplant one was the was men wrote odd to not thene stiand before as will no dulochbe with so milesobath homos oprieva aleb sveda groupetab & . Crabeta spelles ten Ibades with the son of which defeate were present but not affected donly at half of or at middings wait on bedieved just become against while woled granulate and abidosta ware provent in with carried that bedy Autotions were affected delical and thing was a decided help to the evaluation of the student's and mailtheir

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The opinion seemed to settle on the fact that the average student was really able to carry on a recreational program, which includes engaging in general sports such as are included in an instruction program of physical education. The next category upward would allow the student to participate in an ordinary athletic program in which the general sports were pursued. The full or strenuous athletic program could be indulged in only by those students who were found to be in the "A" classification or very much above the average.

Those slightly below the level of the average should be given a restricted or supervised recreational program, which is suited to their ability to indulge in those things that would not aggravate the defects affecting their body functions. Those students in the lowest physical education level should be allowed only those recreational activities which were specifically recommended by the physician.

## Classes

In a discussion of class programs, the educators felt that since going to school was the main interest of the student, that factor should receive more emphasis and consideration than the other three factors mentioned. Also, it was their belief that the average student could take the full classwork offered in the usual curriculum. Starting with full classwork as the midpoint, descriptions expressing five categories were given. An enriched program is prescribed for the student who had better than average health. (This assumes responsibility only for physical ability.) In the upper limit, the student has physical capacity to take additional subjects.

In the lower limits, the student with defects affecting body

The opinion sound to needle on the last that the morney ordinate out, and could be proposed to state the outpers, which includes emphasize in account appropriate of the seasons of proposed in an incomment of the state of the seasons of proposed on the contract of the state of t

These alignally below the level of the everys should be given as restricted to their actions of their secretaries and property of the should be should be should be activated to the defeath affection. These abstracts in the local physical objected objected be allowed only though recruational sectivities which the properties.

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In a discussion of olson programs, the educators inlt that since should coint to sobool was the main interest or the etudent, that inches should require norse contests and modulation that the everage student pould said the size of the state of the student pould take the state of the state

in the latter littles, the obsert titl defects affecting body in

functions should pursue moderate classwork. In most cases, this would mean less than full work. In the extreme lower limit, school work should be definitely curtailed at the discretion of the physician.

### Labor

In the schools of this study, labor was considered a vital part of the school program because of its relationship to Health. Since this industrial load was affected by the physical condition of the student, a statement from the examining physician would be of value. It was agreed that students with defects present not seriously affecting body functions could do a moderate amount of work. It was soon discovered that both type and quantity of work entered into the picture. At this age, with defects present, too laborious or too long protracted work might cause a slowing up of the mental processes. Hence, labor as a factor should receive careful consideration from the physician.

Starting with "moderate" as a reference point, "strenuous" was described as the top limit, and "unrestricted" as the category between this and the midpoint. The category below the reference point was considered as that condition in which restricted work was permitted, and the lowest limit that in which only very restricted work might be done.

# Health Classification of the Student

After "sorting" the material, it is evident that the average high-school and college student of today is able to do ordinary, but not every kind of work. He is capable of taking full class work,

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# Health Report

Grade	Labor	Classes	Physical Education	Health	NUTRITION Weight	x	xx	xxx
A	Strenuous	Additional	Strenuous Athletic	No perceptible defects present or defects corrected	Posture  Diet habits  HEARING  VISION	x x x	xx xx xx xx	xxx xxx xxx
В	Unrestricted	Enriched	Athletic	Defects present not affecting body functions	EYES	x x	xx xx	xxx xxx
C	Moderate	Full	Recreational	Defects present not seriously affecting body functions	MOUTH TEETH TONSILS LYMPHATICS	x x x	xx xx xx xx	XXX XXX XXX
D	Restricted	Moderate	Supervised or excused	Defects present affecting body functions	SKIN BLOOD PRESSURE	x x	xx xx xx	xxx xxx
E	Very restricted	Limited	As directed by physician	Needs care of physician	LUNGS ABDOMEN	x x	xx xx	xxx xxx
	e: These grades	are given by	for each of the four the physician to the physical pote	assist the	FEETOTHER DEFECTS	x x x	xx xx xx	XXX XXX

# RECOMMENDATIONS

R. N.

M.D.

x Indicates that condition in which there is no perceptible defect present.

xx Indicates that condition in which defects present are not affecting bodily function. They usually do not need treatment.

xxx Indicates that condition in which defects present are affecting body function. They usually require treatment or further study.

# Physician's Record

EYES	BLOOD PRESSURE / x xx	xxx
lids ( )	And the second s	
strabismus ( ) x xx xxx	HEART	
diseased()	quality ( )	
conjunctiva ( )	enlarged()	
EARS	irregularities ( ) x xx	xxx
wax ( )	murmurs( )	
discharge ( )	San special benefits the second	
canal ( ) x xx xxx	LUNGS	
drum ( )	expansion ( )	
mastoid ( )	rales() x xx	xxx
NOGE	dullness()	- 64
NOSE	to los	
discharge ()	ABDOMEN	
obstruction ( ) x xx xxx	scar()	
inflamation ( )	ptosis ( )	
sinusitis ( )	I amala ( )	
MOUTH	organs palpable ( )	XXX
breath ( )	tender, where ( )	
lips ( ) x xx xxx	centre, where	
membrane ( )	REFLEXES	
tongue ( )		
TEETH A MACESSAS COOMS	absent ()	
tartar ( )	sluggish ( ) x xx	xxx
cavities ( )	exaggerated( )	
fillings ( ) x xx xxx	ORTHOPEDICS	
diseased gums ( )		
maloclusion ( )	joints: swollen, painful ( ) x xx	жж
	spine: lordosis ( )	
TONSILS	kyphosis ( )	
absent ( )	scoliosis ( ) x xx	ххх
enlarged ( ) x xx xxx	feet: flat ( )	
inflamed ( )	pronated ( )	
tags ( )	relaxed ( ) x xx	ххх
LYMPHATICS	athlete's foot ( )	
inflamed ()		
enlarged ( )	GENITO-URINARY ( )	
	( )	
THYROID	( ) x xx	xxx
palpable()	( )	
enlarged ( ) x xx xxx		
nodular ( )	OTHER DEFECTS	
SKIN	()	
eruption ( )	() x xx	xxx
disease ( ) x xx xxx	()	
	A CONTRACTOR OF THE PARTY OF TH	

FURTHER EXPLANATIONS (Place recommendations on next page)

recreational program, but not an athletic program. He has defects, but they are not seriously affecting body functions. Deviations above and below "C" are limited and described for the physician to circle. These descriptions are in terms of standards, and are positive. By these standards, the physician is giving a grade for probably capacity to function on the physician is giving a grade for probably capacity to function on the physicial level. He is stating how much, in his expert opinion, the one he has examined is probably capable of doing in the four categories of education as given in the health classification. Just as the standards for the teacher of English or Algebra require so much achievement, so also the physician says this student should receive the grades designated because of his physical potentialities. This then becomes a classification of students, and not of disease.

This scheme of rating should be of help to the physical education director, to the school administrator, and to the parent, in understanding the potentialities of the student as seen through the eyes of the physician.

The following classification is given to assist the physician in making a positive statement of the physical potentialities of the group examined, which represents a nearly normal distribution of all the marks given for physical examinations.

# Physician's Record

EVEL a palyeros to oldanes of oil well-OOD BIE-SPEELS Labour ord to	
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FURTIMES EXPLANATIONS

Table 29 Percentage of Each Standard Deviation to the Normal Distribution Curve

Grado	Percentage	Description
A	7	Superior
. B	24	Above average
C	38	Average
D	24	Below average
E	7	Inferior

# A Survey of the Use of the Present Physical Examination Record

Since the Physical Examination Record has already been in use for five years, a survey of its comprehensiveness would be of value in making certain that no items of importance are emitted and items of great importance are recorded. When eight hundred physical examinations were tabulated in four schools, the frequency of the items checked revealed that all the descriptive details for each item were in constant use. In a few instances, there were new terms added. However, to give the physicians an opportunity to express themselves, in addition to tabulating the finding on the physical examination, would reveal additional valuable data. Therefore, a questionnaire on the entire Physical Examination Record form was prepared. Plenty of room was provided for the expression of individual opinions in the repenses.

This questionnaire was sent to sixty-five physicians, who had previously used the Physical Examination Record, and to twelve nurses who had assisted in these examinations. The same questionnaire

Table 29, Ferrentings of Land Atastach Reviewing to the Horsell

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# A Survey of the Use of the Property of Section A

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This questionaire was sent to similar the physicism, who over to the proviously used the the institution and to the treits and to the sens and the sens questionaire automates who had abstrate and in these sens questionaire

was sent to fifteen additional physicians, who are familiar with other school examinations. The following discussion summarizes the comments of these physicians and nurses, who can be considered experienced in the use of the Physical Examination Record form for elementary, secondary, and college ages.

Table 50 Suggested Changes on General Health, Immamisation, Family and Personal History Sections

Section	Additions	Omissions
General Health	Excellent Average Foor	
Family History	Tetamus Toxoid Diabetes (10)* Arthritis Wervous Endocrine	Cancer Mental Eidney (2)*
Personal History	Nervous headaches Dysmenorhea Constipation Allergy (5)* Hay Fever (5)* Orthopodic defects Nervous breakdown Thyroid hyper. & hypo. Chorea Growing Fains Other terms to describe Nheumatis Glands Section on Pelvic Speech defects	
Humbe	r suggesting changes ne or suggesting no changes or making no comment	

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Table 31 Suggested Changes to Sections on Musculature, Hair, Hearing, and Vision

Section	Additions	Ommissions
Musculature	Deficient fat	Underdevelopment Coordination poor
Hair	Other abnormalities Falling	Scalp tight Rough
	Scalp disease Thin	
Hearing	Separate section for ears	
	Method used to determine	
Vision	Separate section for eyes	Separate section for glasses
Tenanta	The same	(Place under vision with and without)
	Trabismus Prominent	
	Sparkle Dull	
	Sclerae Diseases	
	Color (for identification	na)
	Inflamed Granulated lids	-
	Stys	December
	Protruding	
Number su	gesting changes necessar	y 12
	gesting no changes neces	25 2
Total	al replies	39

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Table 32 Suggested Changes in the Physician's Section of the Physical Examination Record

Cooking	132111	0
Section	Additions	Ommissions
Throat	Glandular Tongue coated	Discharge
Face	Alert Void of expression	
Nose	Mucous membrane	
Teeth	Orthodontia Maloclusion Replacements needed	with Branch Days
Lungs	Resonance (record actual expansion)	"lack of" under expansion
Tonsils	Tags Atrophy Hypertrophic	Cryptic
Feet	Corns (on same line with callouse Eversion	
Posture	Slump	ots
Skin	Anemia Fresh Soft	Jaundice
Abdomen	Tender: Masses felt Incosto-vertebral angles Organs palpable	Organs felt
Cervical	Fixed	

Table 32 incepted Changes in the Hystotas's Section of the Hystotas's Section of the

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	bexti	

# Table 52 (concluded)

# Succested Additional Sections Descriptive Items Ears Wax Discharge Eyes Genitals Monatruation Butrition

# Mearrangement:

Pace, Mose, Teeth, Tonsils, Servicel, Thyroid, Heart, Lunge, Abdomen, Skin, Posture, Blood Pressure, Pulse listed with Blood Pressure, Throat, Posture listed under Musculature, Skin listed under Mair.

# Sumber reporting on this item 29

From Table 33, it is learned that the median time consumed by physicians in filling out the Physical Examination Record is in the ten-minute interval. The stock answer from these physicians, upon personal inquiry, is from seven to ten minutes.

Table 33 Length of Timo Consumed for Each Physical Examination

Time (Minutes)	Frequency
1-5 6-10 11-15 16-20 21-25 26-30	20 20 20 20 20 20 20 20 20 20 20 20 20 2

The second second second second The state of the state of The next question rowels the reaction of the physicians in regard to the time required and adequacy of the Physician Examination Record. Thirty-nine physicians report that the form is arranged for a quick inspection; thirty-seven report that it is adequate; and two doubt that sufficient items are inspected.

The next point of inquiry dealt with the difficulty, if any, experienced in the using of five categories to express the degrees of severity. Thirty-eight report no difficulty, and one reports that there was some difficulty. Newever, the following comments were cade in the space provided for this section in the questionnaire:

Five-point leads to confusion.

"Normal" is indefinite term.

Power entegories, less time wasted.

Plenty difficulties.

Make proper placing difficult.

Terms not always accurate, but accuracy has to be sacrificed for uniformity.

The next phase of the questionneire stated: Five years of use with the Physical Examination Second has shown and recent additional atudies give further evidence, that physicians report their findings in three general categories: (1) The condition is normal; (2) The condition is below normal but nothing need be done about it; (3) The condition is below normal and should receive treatment. Do you agree with these findings?

Thirty-seven persons reported that they agreed with this statement;

one disagreed; and one made no comment.

To assist the physicien in making a positive declaration, the use of the colors-green, yellow, and red-was suggested. Thirty-five reported that those colors did assist the physician in interpreting the physical examination; three believed that this would be confusing; and one was satisfied with either the three-point scale with colors or the five-point scale, as it is defined.

To make certain which the physicians would choose to use, a choice was given between the five-point scale and the three-point scale with the three colors. Thirty-five preferred the three-point scale with the colors; two the five-point scale; and one felt that either was adequate; and one suggested a three-point scale without color.

The last item, which deals with other comments made in regard to the Physical Examination Record, is found in Table 34.

Table 34 Comments, Criticisms, and Suggestions Made by Individuals Who Answered the Questionnaire

# Favorable Comments

Form is excellent for school health purposes, particularly the grading of degrees of severity.

Blank is speedy and adequate to pick up defects needing attention. Very good.

This form on the whole is by far the best, most workable, and most useful we have seen.

Color method much clearer.

Response quicker and more accurate.

Clover idea.

Two doctors and two nurses liked it immensely.

It has worked quite satisfactorily for ne.

For the purpose for which this examination blank is intended, I feel that it is adequate.

Your record is excellent.

Your form is swell for peace time and ordinary needs and standards. Color scheme is improvement. I recommend it.

Less difficulty on classification than on five-point scale.

# Oriticismo

You have missed many items which indicate health, and put in many things of little importance.

General picture can easily be lost in evaluation of a mass of dotails.

Blank needs to be greatly simplified.

Individual profile is waste of time and paper.

Too many signatures required.

Unnecessarily complicated.

Prefer cumulative record.

The form for State University school is as good as any, but this one looks better in some respects.

Reeds more space for M. D. to write condition.

# Suggestions

Height should be transferred to Weight section. Terms now used for Posture are really for Back.

All Personal History should be omitted.

Yellow should mean that the condition should be kept under observation of family physician or dentist.

Symptome must accompany Blood Pressure before it becomes significant.

It is interesting to note from Table 34 that there are fourteen favorable comments, nine unfavorable, three of which deal with one item, and six suggestions, -- a total of thirty-seven criticisms from thirty-five returns.

The comments on the favorable side indicate that the physicians like the blank because it is speedy, accurate, and "picks up" defects needing attention. These comments are the replies given in one section of the questionnaire, which provided for "comments ad. lib.," and are the spontaneous reaction of the physicians. They are given without fear of the ethics of the medical profession because most of the blanks were not signed.

The favorable reactions to the three-point scale, using color, receive the endorsement of the group by such expressions as "less difficult on classification than on five-point scale," "color method much clearer," "color scheme is improvement, I recommend it."

In dealing with criticisms, three suggested that the blank was complicated. It is to be noted in this connection that all three of these criticisms came from phsycians who had not previously used the Physical Examination Record. All the criticisms mentioned were given careful consideration in the revision of the blank.

The few items on suggestions were placed there because the physicians stated they did not want to make them as criticisms, but that they should merely be considered when the record form was revised. These suggestions have also been given careful consideration in the revision of the blank.

It is interesting to come from fable in their there are fourteen favorable commence, ains universalls, three of which deal with one item, and six authentions, -a total of thirty-seven oritics and from their thirty-seven oritics and from their thirty-five returns.

The community on the favorable sign indicate that the physicians like the plant because it is speedy, uncourate, and "picks up" defects needing strentism. These dominants are the replies given in one section of the questionalis, which provided for "commonts ad. lib.," and are the apparaments reaction of the physicians. They are given without read of the ships of the medical profession because read of the blanks were not she stated.

The favorable reactions to the bires-point scale, saint reloct, and the endorsement of the group by such expressions as "lose difficult on classification thin on the-point scale," "color method much classes, " "color school the languagement, I recommend it."

In dealing with originary three suggested that this blank was complicated. It is to be noted in this commention that all three of the state of the state.

The for lower on engagestions were placed there because the physical state they state they state they state they are the they are considered that the record form and revised. These suggestion have also been given correly consideration in the revision of the bient.

#### Items Changed as a Result of the Survey

The problem of accepting or rejecting these suggestions which resulted from the questionnaire now becomes a major step in preparing the Physical Examination Record for its new streamlined form. The writer met with a committee of four selected from the medical staff of the Washington Sanitarium and Hospital # and the health service staff of Washington Hissionary College, # the professional and educational status of which committee is as follows:

Table 35 Professional and Educational Status of the Committee of Four Who Studied the Suggested Changes to the Physical Examination Record

Position	Degrees				
Director of Student Health Washington Missionary College and Washington Samitarium and Hospital		S.,	M.	D.	1
Professor of Eursing Education, Washington Eissionary College	M.	Ass	R.	N.	1
Superintendent of Murses, Washington Semitarium and Hospital	В.	S.,	2.	R.	1
Director of Eursing Education, Washington Samitarium and Hospital		S.,		N.	1

This committee studied and recommended or rejected every suggestion given in Tables 30, 31, and 32.

These recommendations and rejections, with the reasons for such, were then presented to the entire resident staff of the Washington

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2/ Takoma Fark, Washington, D. C.

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The problem of accepting or rejecting these suggestions which required from the questionships and becomes a representation that the first the continued form. The writter cut of the continued from the continued form of the continued form the continued form. The writter cut of the continued form the first that the continued of the first that the first that the first the continued of the continued

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Sanitarium and Hospital for their approval or rejection. This same procedure was carried out with the staff of the New England Sanitarium and Hospital. Table 36 gives the professional and educational status of these two medical staffs.

Table 36 Professional and Educational Status of the Medical Staffs of the Washington Sanitarium and Hospital and the New England Sanitarium and Hospital

Position	Degrees	Number of Persons
Washington Sanitarium and	Hospital:	
Medical Director	A.M., M.D., F.A.C.P.	1
		smale) 3
Surgeon	M.D., L.R.C.P. & S. (Edinbu	irgn), I
Psychiatrist	F.A.C.S.	Tenend 1
Cardiologist		1
Pediatrician	A.B., A.M., M.D.	1
Pediatrician	A.B., M.D., L.R.C.P. & S.	
The Daw and Nasa	(Edinburgh), D.T.M. (Live	rpoor) 1
Eye, Ear, and Nose	M.D.	1
Roentgenologist	A.B., A.M., M.D.	-
Surgeon	M.D.	1
Resident	M.D.	2
New England Sanitarium ar	nd Hospital:	
BUT THE REAL PROPERTY.	The party of the p	Par and Parties
Medical Director	A.B., M.D., F.R.C.S. (Edin)	ourgh) 1
Obstetrician and	that we desired the party of the	San S. Land
Pediatrician	M.D., D.N.B.	1
Medicine	B.S., M.D.	The state of the s
Surgeon	A.B., M.D., F.R.C.S. (Edin	ourgh) 1
Medicine	M.D., D.N.B.	1
Eye, Ear, Nose and		
Throat	B.S., M.D., D.N.B.	1
*		
Total		16

The results of the deliberations of these two medical staffs are found in the new Physical Examination Record which follows. The reasons 1/ Melrose, Massachusetts.

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	(Mainemagh) 1	Avide, Marte, Pedico. N. New York.	

The results of the dillocation of those on mades exists or resons found in the case of the contract of the con

for the acceptance of these changes—additions or omissions—lie entirely in the judgments of the staff physicians. To illustrate: It was suggested that tensils should be described by the addition of the terms "tags," "atrophy," and "hypertrophic," and that the term "cryptic" should be emitted. The opinion of the medical staffs was that "tags" should be added to the descriptive terms, and that, while "atrophy" and "hypertrophic" described specific conditions, these descriptions were not generally found in high-school and college students. In their judgments, the terms "enlarged" and "inflamed" were descriptive enough to designate the conditions usually found in this age group. The term "cryptic" was emitted because in enlarged tensils a cryptic condition was most generally found.

To illustrate further: For teeth, "orthodentia," "maloclusion," and "replacements needed" were suggested. The medical staffs suggested that "tartar" was more easily understood than orthodentia, and favored the retention of the simpler terms. The terms "cavities," "fillings," and "diseased gums" described the conditions usually found. They claimed there was an increased number of cases of maloclusion, and recommended the inclusion of that term.

Thus, all items in the Physical Examination Record might be discussed. Discussion of these two items illustrate the part that the medical profession played in the selection of the descriptive terms.

The Physical Examination Record from which resulted from this survey and these conferences is given as the final contribution to this study.

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The state and the state of the state of the state of the part that the court out to discuss a state the part that the court out of the part that the court out of the descriptive terms.

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## PHYSICAL EXAMINATION RECORD

of

RECOMMENDATIONS

# Physical Examination Record

	BOOSH KUNTAN	CARA THURSTON	Health	Grad	le
Name		School			
Age	Sex	Grade Date			
CENERAL HEALTH   Excellent	PERSONAL HISTORY  Pleurisy	Check condition found (V) degree of defect.  NUTRITION Height In inches  Weight Standard Actual  Posture Fatigue (Relaxed (Coordination (Diet Habits (Ample Vegetables (Eats: sparingly (Well (Well (V))))	^	x to	xxx xxx
Tuberculosis ( ) Other	Orthopedic ( ) Joints, swollen and Painful ( )  Rheumatic Fever ( )  Accident ( )  Surgery ( )  Other ( )	between meals (  HEARING right left  VISION right left CLASSES right	x	xx xx / /	2XX XXX / / /
T P R	( )	left	2%20	1	1

RECOMMENDATIONS

R. N.

xxx Indicates that condition in which defects present are affecting body function. They usually require treatment or further study.

x Indicates that condition in which there is no perceptible defect present.

xx Indicates that condition in which defects present are not affecting bodily function. They usually do not need treatment.

# **Health Report**

Name		36			Date			
Grade	Labor	Classes	Physical Education	Health	NUTRITION Weight	×	xx	xxx
A	Strenuous	Additional	Strenuous Athletic	No perceptible defects present or defects corrected	Posture  Diet habits  HEARING  VISION	x x x	xx xx xx	XXX XXX XXX
В	Unrestricted	Enriched	Athletic	Defects present not affecting body functions	EYES EARS NOSE	x x x	xx xx	xxx xxx
C	Moderate	Full	Recreational	Defects present not seriously affecting body functions	MOUTH TEETH TONSILS LYMPHATICS	x x x	xx xx xx	XXX XXX XXX
D	Restricted	Moderate	Supervised or excused	Defects present affecting body functions	SKIN BLOOD PRESSURE	x	xx xx	xxx xxx
Ε	Very restricted	Limited	As directed by physician	Needs care of physician	LUNGS ABDOMEN	x x	xx xx	xxx
	e: These grades	are given by	for each of the fou the physician to the physical pote	assist the	REFLEXES	x x	xx xx xx	xxx xxx

## RECOMMENDATIONS

Indicates that condition in which there is no perceptible defect present. wx Indicates that condition in which defects present are not affecting bodily function. They usually do not need treatment.

. R. N.

wxx Indicates that condition in which defects present are affecting body function. They usually require treatment or further study.

# Physician's Record

EYES	21673		BLOOD PRESSURE /	×	xx	xxx
lids	AND REAL PROPERTY AND ADDRESS OF THE PARTY AND					
strabismus	X XX	xxx	HEART			
diseased			quality()	2011		
conjunctiva	- ( )		enlarged( )			
EARS			irregularities ( )	×	xx	xxx
wax			murmurs ( )			
discharge	- ( )		The state of the s			
canal	_ ( ) x xx	xxx	LUNGS			
drum			expansion ( )			
mastoid	_ ( )		rales ( )	x	xx	xxx
NOSE			dullness ( )			
discharge	( )		(L 100)			
obstruction	_ ( )		ABDOMEN			
inflamation	, v vv	xxx	scar ( )			
sinusitis			ptosis ( )			
MOTITUTE	ROMBING		hernia ()	×	xx	ххх
MOUTH	( )		organs palpable ( )			
breath			tender, where ( )			
lips membrane		XXX				
tongue		- Wester	REFLEXES			a
	sampama diberra		absent ( )			
TEETH	Market		sluggish ( )	×	xx	xxx
tartar			exaggerated ( )			
cavities			about his completed the bound that			
fillings		xxx	ORTHOPEDICS			
diseased gums			joints: swollen, painful ( )	×	xx	xxx
maloclusion	- ( )	4	spine: lordosis ( )			HIC.
TONSILS			kyphosis ( )			
absent	_ (( ) ) _ ( ) _ (		scoliosis ( )	x	xx	xxx
enlarged		xxx	feet: flat ( )			
inflamed	- ( )		pronated ( )			
tags	- ( )		relaxed()	×	xx	xxx
LYMPHATICS			athlete's foot ( )			
inflamed	_ ( )					
enlarged	A AA	xxx	GENITO-URINARY ( )			
			( )			
THYROID	( )		( )	x	xx	ххх
palpableenlarged		xxx	( )			
nodular			000000	-		
	- ( )		OTHER DEFECTS			
SKIN			( )			
eruption		xxx	()	×	xx	xxx
disease	- ( ) ***	000	()			

FURTHER EXPLANATIONS (Place recommendations on next page)

#### CHAPTER VI

## SUMMARY AND CONCLUSION

#### Summery

The need for a more objective physical examination record has been established for some years by medical research workers. In the attempt of this study to produce an objective record form, the purposes have been set forth as: (1) To define the aim of the periodic physical examination; (2) to standardize by definition the degrees of severity; (3) to weight each item on the physical examination; and (4) to interpret the results of the examination to the educator and to the parent.

This study has defined the periodic physical examination as: (1)

To discover individual health assets; (2) to learn as accurately as

possible individual health liabilities, that appropriate remedial measures

may be taken; and (3) to interpret these findings to the educator and to

the parent.

To standardize by definition the degrees of severity involves the setting up of discrete terminals in a continuous scale. For this study, three degrees of severity have been designated: (1) That condition in which there is no perceptible defect present; (2) that condition in which defects present are not affecting bodily function. They usually do not need treatment; (3) that condition in which defects present are affecting body function. They usually require treatment or further study. To weight each item in the physical examination with a numerical evaluation proved, in spite of very careful procedures and statistical calculations, to be impractical, because each item inspected takes on a different value

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in proportion to all other items when it becomes impaired. It is necessary for the physician to inspect the impairment of the item considered before the weight can be established. Therefore, it has been necessary to leave the marking or grading of the results of the physical examination to the physician at the time the examination is made.

For that reason, the Health Classification Chart, appearing as part of the Health Report, is given as the physician's mark of health and forms one of the factors in interpreting the results to the educator and parent.

In addition to the physician's mark of health as given in the chart a profile has been set up to indicate in a graphic representation the condition of the specific items as they are seen by the physician. The physician's mark, the detailed profile, and the recommendations of the physician interpret the results of the physical examination to the educator and to the parent.

As to the methods used in the attempt to fulfil the purposes of this investigation, exhaustive research of the previous studies in the field of physical examination records was pursued to ascertain what had been done. Twenty-three different criteria have been set up by other research workers for successful procedure in the periodic physical examination. A detailed and careful study of the work of three physicians revealed the fact that a more "positive" approach was necessary to obtain the objectives set up for this study.

To form a basis for determining the items necessary to be inspected by the physical examination record form, the opinions of eighteen physicians were considered. These physicians determined the items to be examined, and also determined the weights for the value of these items.

In proportion to all other items when it becomes impaired. It is necessary for the physicism to inspect the impairment of the item does started before the weight can be established. Therefore, it has been necessary to leave the marking or grading of the results of the physician at the time the examination is ade.

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To form a bouts for determined then items necessary to be inspected.

The physical examination record igns, the optaions of cities physicals were considered. These physicisms determined the items to be created, and also determined the weighter for the value of these items.

However, careful analysis of their findings revealed such a lack of uniformity that it was necessary to devise a new method of evaluating the physical examination. For this new method, the use of color as it is used in the traffic signal system was suggested, and a preliminary survey revealed that not only did this appeal to the physicians, but it produced greater uniformity than did the system of weights used in the original survey.

A re-survey among the physicians who had used the Physical Examination Record showed the mechanical changes which should be made. A careful analysis of the recommendations of these physicians and a discussion by two medical staffs resulted in a Physical Examination Record Form, which incorporates the items necessary for the physical examination of high-school and college students, a mechanical arrangement conducive to ease in administration, a color system of descriptive limitations that can be clearly interpreted to the educator and parent, and a clearer understanding of the physical potentialities of the student.

#### Conclusion

The three objectives set up on the periodic physical examination have been met, in some degree at least, by the efforts of this study:

(1) Individual assets are revealed by the physician circling green on the Physical Examination Record: (2) liabilities are revealed by the physician circling amber or red; remediable defects, marked red, are given impetus for correction; (3) the assets and liabilities are reported to the teacher and the parent in positive language on the Health Report, using both the Individual Health Profile and the physician's mark on the Health Classification Chart.

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#### APPENDIX

## THE DEAVER SCORE SHEET 1/

1. Muscular development.

Excellent -0, good-1, average-1, poor-2, very poor-3.

2. Weight, height, age.

Use chart to find normal weight for age and height.

Light Weight

O equals 5% below normal

1 equals 10% below normal

2 equals 15% below normal

3 equals 20 % below normal

#### Medium Weight

O equals 5% from normal

1 equals 10% from normal

2 equals 15% from normal

3 equals 20% from normal

## Heavy Weight

O equals 10% above normal

1 equals 15% above normal

2 equals 20% above normal

3 equals 25% above normal

## 3. Vital capacity

Use chart to find normal vital capacity for body weight.

<sup>1/</sup> Dr. G. G. Deaver, Motivating Physical Examinations; The Y. M. C. A. Press, Chicago.

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2 equals 130 below burnel
5 equals 20 % bolow agricult

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O equals 85% or better

1 equals 75% to 81%

2 equals 65% to 71%

3 equals below 65%

#### li. Posture.

A-0, B-1, C-2, D-3.

5. Spine-scoliosis.

1-2-3 depending on severity of deformity
Flexibility curve score 1 or 2
Rigid curve score 1 or 2

6. Legs.

Bow-legs &, Enock-knee &.

7. Feet-depressed longitudinal arch.

0-normal
1-pronation, no pain
2-flatfoot, or pronation with pain in foot or calf.
3-flatfoot or pronation with pain and rigidity of bones.

Feet - depressed transverse arch.

1- depressed transverse arch, pain walking.

2- depressed transverse arch, pain and calous on sole of foot.

3- condition present in both feet, difficulty in walking.

8. Toes.

The condition of the toes-hallux, valgus, corns, bunion, toe itch (athlete's foot) etc.

1-2-3 depending on severity.

#### 9. Joints

1- synovitis with weak joint, when used in physical acitivity.

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il aquala 65% to 71%

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La Poutage

A-O. B-1, C-R, D-3,

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1-2-5 depending on severicy of deforably Plexibility ourse seers 1 or 2 High comes seers 1 or 2

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T. Foot-depressed longitudient arch.

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Foot a depressed transverse arch.

1- depressed transverse mesh, pale colling.

2- depressed transverse areh, pain and oalous on sole of foot.

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The condition of the tost-ballur, walges, cores, bunion, tos los tost (atbleto's foot) etc.

1-2-3 depending on severity.

ATURDS of

1- system with make joint, when said in physicalisatory,

2- synovitis pain on motion with exercise.
3- arthritis in many joints.

10. Distant vision. Deduct score for each eye.

0-normal vision 20/20
1-vision 20/40
1-vision 20/60
1-vision corrected by glasses.

11. Mear vision. Deduct score for each eye.

0-if smallest type can be read by each eye at 14 inches.

12. Test for form.

3- for any definite diminution in the field of vision.

13. Pupils.

O-normal 3-irregular or do not react to light - Argyll Robertson pupil.

14. Color vision.

2- if color blindness is present.

15. Astigmatism.

2- astigmatism, symtoms of eye strain, headaches. 1- if corrected by glasses.

16. Muscle balance.

-heterophobia. corrected by glasses.

1-heterophobia.

2- exophoria - both eyes rotate inward.

2- esophoria - both eyes rotate outward.

2- strabismus - one eye deviates (cross eyed).

the approvious pain on motion with exercise.

10. Distant vision. Deduct score l'or dech sye.

O-mormal vision 20/20 b-vision 20/30 l-vision 20/50 l-vision sorrected by glashes.

11. Hear vision, Deduct score for each eye,

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2- if solor blindness is present.

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1-heterophobies

2- exophories both eyes rotate inwards

2- exophoris - both eyes rotate dateards

2- eterophoris - one eye deviane (eross eyed).

#### 17. External affections.

1- all acute infections.

2- chronic inflammation of moderate degree.

3- chronic infection of severe degree.

## 18. Media.

Conjunctiva. Score 1-2-3 depending on severity and degree.

Cornes. Score 3 for corneal ulcers, keratitis.

Iris. Score 2 for iritis.

Lens. Score 1-2-3 for cataract, depending on type and effect on vision.

Retina. Optic nerve. Score 3 for any disease of same.

#### 19. Hearing.

0-normal 1-15/20 2-10/20 3- 5/20

#### 20. External canal.

1- inflammation, swelling, skin disease, excessive wax.
2- if any discharge.

#### 21. Drums.

1- if perforation of ear drums.

## 22. Weber test.

2-positive test in either ear.

## 23. Masal septum.

O-normal.
1-slight deviation on one side, slight obstruction
of breathing.
2-bediation blocking air passage one side.
3-total stoppage of air through nasal passages.

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24. Sinuses.

1-if any signs of sinus infection.

25. Pharynx.

1-if any evidence of congestion.

26. Larynx.

1-acute laryngitis of recent origin, husky voice. 2-chronic husky voice.

27. Tonsils.

0-normal.
1-tonsils enlarged, congestion of anterior pillars, no evidence of local or systemic symptoms.
2-tonsils enlarged, cryptic or infected, history of repeated sore throats, no systemic symptoms.
5-tonsils as above, history of neuritis, rheumatism, lumbago, etc.

20. Breath.

1-for any halotosis of any type.

29. Gums.

1-red margins on gums and bleeding.
2-receding gums with loose teeth.
3-pyorrhea with systemic infection, such as rheumatism, neuritis, lumbago, etc.

30. Teeth.

O-normal teeth, or teeth with not more than three fillings, none missing.

1-for every decayed tooth (up to three), loose teeth, much bartar, missing teeth, large amount of dental work.
2-dead teeth with evidence of systemic infection, such as rheumatism, neuritis, lumbigo, etc.

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26. Largnan

L-admin largeritte of recent selfin, husby voice.

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O-commist enlarged, congestion of anterior pillars, no evidence of local or systemic symptoms.

2-tensits onlarged, orgphic or infected, bistory of repeated sore throats, no systems symptoms.

3-tensits as above, history of neuritis, rheumatism, lumbage, etc.

28. Breaks

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#### 31. Heart enlargement.

3-marked on enlargement and heaving best.

#### 32. Heart murmurs-functional.

1-functional sursur when slight and unknown to subject. 2-moderate and giving symptoms on exertion. 3-savere, distressing patient on exertion.

#### 32. Heart murmurs-organic.

1-slight - perfect compensation, no symptoms on exercise.

2-compensation with hypertrophy, shortness of breath on exercise.

3-signs of decompensation always present, such as cyanosis, palpitation, etc.

## 53. Pulse.

O-pulse rate u der 70 (for men). 1-between 70-85. 2-between 85-100.

1-if difference in pulse rate between 1 and 2 is 10 or less.
2-if difference is 11-20.
3-if difference is over 20.

## 34. Blood pressure.

0-within 10mm of norm for age, see chart. 1-within 15mm of norm for age. 2-within 25mm of norm for age. 3-within 35mm of norm for age.

l-if pulse pressure is over 50mm. Add to Bl.Pr. score.

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32. Heart surrous durations is

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32 June system organic

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3-components of decomponentian always present, such as companies, palpitation, about

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O-gulta esta a der 70 (feb ann). 1-berhen 70-85. 2-betoden 85-100.

This contraction is pulse rate between 1 and 2 is 10 or 1000.

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1-12 poles processes is over found and to Elepte.

Age	Systolia	Diastolic	Pulse pressure
20	120	79	41
30	122	81	4,2
20 30 10 50	129	83	1,2
50	129	65	1,da
60	134	67	147
All ages	121	81	1,3

#### 35. Respiratory system.

Score 1-2-3 depending on physicians diagnosis.

1-acute bronchitis 2-chronic bronchitis 2-cmphysema, plcurisy 3-tuberculosis 4-hudrothorax, empyema

#### 36. Abdomen.

1-protruding, pendulous or scaphoid type of abdomen.

#### 37. Tenderness.

O-no areas of tenderness and advise individual to have diagnosis made.

## 38. Rhomberg's sign.

5-for any form of muscular tremors, demand investigation of cause.

## LO. Gait.

3-for any abnormal gait due to nervous system pathology. Investigate cause.

## hl. Speech.

1-speech defects due to mechanical impediments.
3-speech defects due to brain or nervous system disease.

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L2. Reflexes.

3-absent or increased reflexes. Demand investigation of cause.

43. Thyroid disease.

1-2-3 depending on severity of symptoms.

14. Skin, lymphatics, veins.

O-mormal skin, uniformly clear of moles, warts, pimples.

1-moles and warts (more than three), slight skin infection, great loss of hair of scalp.

45. Lumph nodes.

2-lymph nodes painful on palpitation.

46. Varicose veins.

1-slight variousities of legs.
2-severe variousities of legs, any chest or abdomen.

17. Vaccination.

2-if not vaccinated.

LB. Penis.

3-any external secretion or sores, until a bacteriological examination proves it negative for gonococci, chance, or chanceoid.

1-inability to retract foreskin, or for white cheesy mass under foreskin.

1-abrasions or ulcerations not due to venereal disease.

LO. Testes.

1-one undescended testicle, or absent testicle, or any condition involving one testicle.

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5-about or increased reflexes. Desend investigation of senses

B. Thyroid discuss.

1-2-5 depending on severing of symphoses.

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19. Testes.

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2-any condition involving both testicles.

50. Spermatic cord.

1-small variaccele or hydrocele.
2-large variaccele or hydrocele causing distention or stretching of scrotum.

51. Kidneys.

1-trace of albumen or sugar in urine.
2-persistent albumen or sugar or casts, etc.
indicating organic disease of kidney.

52. Hernia.

2-hernia supported by truss.
3-hernia not supported by truss.

53. Hemorrhoids, fissures or fistula.

2-if pain, bleeding or any general nervous symptoms.

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50. Spermette ourd.

Laure variancele or indrocele cousing distantion or E-large variancele or indrocele cousing distantion or attraction of attraction of attraction.

51. Hidneys.

l-trace of elbumen or sugar in urine.
2-permiatent elbumen or sugar or caste, etc.
indicating organic disease of kidney.

SE. Herrala.

Semerate supported by trues.

55. Removerboids, Cinsures or Clauses.

2-if pain, blooding or any general nervous symptoms.

THE HYDE PARK SCORE SHEET 1/

#### Item No.

14. Vaccination.

Score 1 if individual has not been vaccinated within five years.

18. Health Examination.

Score 1 if the individual has not been examined at the Y. M. C. A. during the preceding year, if a member over one year.

19. Active Exercise.

Score 1 if active exercise is not being taken.

Sleep.

Score 1 for every half hour lost under eight hours.

Teeth.

(See Health Examination Record Card, item 35.)

Diet.

Score 1 to 3 for irregular meals, improper diet, insufficient water, excessive coffee or tea, etc.

Tobacco and alcohol.

Score 1 if used Score 2 if obvious harm is being done.

Bowel movements.

(See Health Examination Record Card, item 39.)

I/ Reported by E. B. Lyle, Master's Thesis, Boston University; 1936.
\* The items omitted do not pertain to the physical examination.

## H TENS SEED BEEN DEED BUT

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Itom ModI

ille Vaccinations

Special it individual has not been vaccinated within five

in Health House the age

Score 1 if the individual has not been excalmed at the Year Y. M. C. A. during the preceding year, if a ramber over one year.

194 Active Engeles.

Score I if active exactive is not being taken.

A COME

Hoors I for every half how less under eight hours.

Ton the

(See Health Engiteering Second Cord, Item 35.)

Dist.

does 1 to 3 for Arregular mala, improper diet, insufficient

Lobesta has conside

Score 2 1f owled harm is being done.

western facett

(Ase Health Headine Macond Card, them 374)

I megeried by h. B. Lyle, Hanger's Thesis, Boston University; 1956.

21. Cymnasium class or other activity.

Score 1 if regular activity is not taken.

Swimming

Score 2 if individual cannot swim.

#### THE HEALTH EXAMINATION RECORD CARD

8. Weight - (Average)

Ideht Watcht

Determine the normal weight for age and height by the chart.

Commission Commission					to the second of						
5%	below	normal,	score	0		5%	variation	from	normal,	soore	0
10%	32	39	11	1	1	0%	11	11	29	n	1
15%	22	41	11	2	1	5%	er .	11	11	23	2
20%	H	THE REAL PROPERTY.	111	3	- 2	0%	18 .	Ħ	11	12	3

Mandayan Wand white

## Heavy Weight

10%	above	normal,	score	0
15%	99	11	65	1
20%	17	52	72	2
25%	u	is	77	3

10. Lung Capacity - (Average)

Determine normal lung (vital) capacity for body weight by the chart

85% or more, score 0 65% to 71%, score 2 75% to 81%, " 1 65% or below, " 3

## 11. 13. Chest Circumference, normal, minus wasit circumference

If difference is 2 inches or greater, score 0
" " less than 2 inches, score 1

#### 12. Expansion

2 inches or more, score 0 Less than 2 inches, " 1

#### 14. Nutritution

Excellent or good, score O Fair, score 2
Poor, " 3

23. Symmetum class on chier notioned . E

sunder som at privison natures it I would

Dulmeling

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## CHAD CHOOSE SOTEARTHAND SELLARS SEE

S. weight - (Average)

saverates the mornel wolche for age and height by the chartes

## delicate the company of the company

Si bolos namel, secre o Si variables from sorrel, score o 1000 " " 1 1000 " " 2 1000 " " 2 2 2000 " " 3 2000 "

## Rency Weight

10% above normal, score 0 15% " " 1 20% " " 2

10. Imag Capacity - (Average)

tederalise nerved long (vital) capacity for body weight by the

Off or mare, score 0 65

11. 13. Chest Circumference, negat, since smalt circumference

O erose preferry to solent E al comparity of

12. Expossion

D cross gorner to station! S'

Ille Bitter toution

Excellent or good, store O Pair, score 2 Poor, " 3 15. Muscular development

Excellent, score 0 Fair, score 2 Good Poor, " 3

Tipe or presented and there is pain in foot or in call of log

16. Skin

> Normal, free from moles, warts and pimples, score O Moles and warts (more than three) in the skin: if there is any evidence of any slight skin infections or disease or a marked loss of hair of the scalp, score 2. If there is acne of a severe type, righworm of the hands or feet, or any other form of skin disease that needs treatment, score 3.

17. Posture

Head, neck. This item refers to the general posture:

"A" posture, score 0 Fair posture, score 2
"B" " " " " " " " 3 "D" posture, score 4 they used in physical activitys S.ore 2, if there is sycovitis

Shoulders 18.

Development, score 0 to 1 Deformity, " 0 to 1

19. Chest

> Development, score 0 to 1 Deformity. " O to 1

Abdomen 204

Protruding, score 0 to 4

21. Pelvis

Deformity, score 0 to 1 ore 1. Ar whalen is 21/30 to 75 per sens.

22. Knees

Deformity, score O to 1 - Genu Varum, Genu Valgum, etc.

2h. Feet

15. Muquian Sevelapment

Excellent, agore D Poor, 8 3 -

16. Sidn

Hormal, free from moles, warts and pinples, secre of Moles and warts (more than three) in the skin; if there is nay suidence of any slight skin infections or disease or a marked loss of hair of the scalp, score 2. If there is some of a severe type, righworm of the hands or feet, or any other form of skin disease that needs treatment, score 3.

17. Posture

Mond, meets This item refers to the general posture:

"A" posture, score O Fair posture, score E

18. Shoulders

Development, score U to 1 Deformity, " O to 1

19. Copes

Development, score Q to 1

remended .OS

Protecting, core 9 to h

Sl. Pelvis

Defermity, moore Q to 1

DR. Execus

Deforalty, score O to 1 - Gene Varum, Gene Valgum, etc.

Depressed Longitudinal Arch
Score U, if normal. Score 1, if feet are flat or pronated but
no pain present. Score 2, if feet are flat or pronated and
there is pain in foot or in calf of leg. Score 3, if feet are
flat or pronated and there is pain in foot or in calf of leg
but the bones are rigid.

Depressed Transverse Arch
Score 1, if there is a depressed transverse arch with pain on
walking. Score 2, if there is a depressed transverse arch with
pain on walking and callous formation on the bottom of the feet.
Score 3, if the condition is present in both feet and the individual has difficulty in walking.

The condition of the toes - hallux, valgus, corns, bunions, itch, etc. Score O to 3 depending upon the severity of the condition.

Joints
Score 1, if there is synovitis present and the joint is weak
when used in physical activity. Score 2, if there is synovitis
present, pain on movement, or after active exercise. Score 3
if there is arthritis present in many joints.

25. Spine

Scoliosis
Score 1, 2 or 3, depending upon the severity of the deformity.
If the curve is flexible, score 1 or 2; if rigid, score 3.

Lordosis
Score 1, 2 or 3 as for scolicsis.

26. Eyes

Distant Vision
Score O if vision is normal 20/20 - 100 per cent.

Score 1, if vision is 20/30 - 75 per cent.

Score 2, if vision is 20/1,0 - 50 per cent.

Score 3, if vision is 20/60 - 35 per cent.

Score 1, if corrected by glasses to 20/20 - 100 per cent.

Deduct this score for each eye as indicated.

and because of the first one feet to the feet or promised but along the first or promised but th no pain presents . Secret 2, if free are time or promoted and

Depressed Transverse Arch Secretarion arch with palm on wellings down 2, 15 there is a degraphed transference and with

the condition of the tees - balles, values, corns, bunlance of inch, coos

Score 1, if there is agreeably present and the folia is week when used in physical activities Sacro 2, if there is symericia present, pain on movements or after active excretes. Score 3 if there is arthrivia present in many jointe.

boore 1. 2 or 5. deponding upon the severity of the deformity.

saleolfone you had to S . I orace

Score O if wision is sermal 13/20 - 100 per cent.

Score 1, if vision is 20/30 - 75 per cents.

Score 2, if wiston is 20/20 - 50 per cent.

Sporte ly if corrected by glasses to 20/20 - 100 per cent.

Near Vision
Score 0, if the smallest type can be read by each eye at 11, inches.
Score 1, for each size larger type, at 11, inches for each eye.

Test for Form Score 3, for any definite diminution in the field of vision.

Pupils

Score 0, if pupils are normal - circular and regular in outline and contract upon exposure to light and accomodation.

Score 3, if pupils are irregular and do not react to light 
Argyil-Robertson pupil.

Tests for Color Vision Score 2, if color blindness is present.

Astigmatism
Score 2, if astigmatism is present and there are symptoms present of eye strain and headache.
Score 1, if corrected by glasses.

Muscle Balance

Score 2 for Esophoria - both eyes rotate inward.

Exophoria - both eyes rotate outward.

Strabismus - one eye deviates ("cross-eyed").

Score 1 for Heterophoria - tendency to deviation.

Score 2 if Heterophoria is corrected by glasses.

External Affections

Score 1 for all acute inflammations.

Score 2 if chronic infection of moderate degree.

Score 3 if chronic infection of severe degree.

Media
Conjuntiva - Score 1, 2 or 3 depending on severity and degree.
Cornea - Score 3 for corneal ulcers and keratitis.
Iris - Score 2 for iritis.
Lens - Score 1, 2 or 3 depending on type of cataract,
degree and effect on vision.
Retina and Optic Nerve - Score 3 for diseases of the retina
and optic nerve.

#### 27. Ears

Score 0 for normal hearing 20/20 or 100 per cent.
Score 1 for 15/20 or 75 per cent hearing.
Score 2 for 10/20 or 50 per cent hearing.
Score 3 for 5/20 or 25 per cent hearing or less.

Hear Vision hours to be read by each one in the form of the form o

Court for Form delinies distinction in the field of vision,

Page 1, if pugils are nerest - orreader and regular in outline and contemet upon exposure to light and assumpdations force is if pugils are irregular and do not react to light -

Tests for Color Vision

Antiquation Comments of the comment of the complete and comment of own strain and headsone.

Score 1, 1f corrected by classes.

Magala Salegon

Score il ion isophoria - both oyea retate davard.

Scophoria - both oyea rotate outward.

Strabiana - oso oyo deviatea ("eroca-syed").

Roye l'for iletersphoria - tendency to deviation.

Score d'if lidierophovia is corrected by glasses.

internal Affections
Coors I for all acres inflammations.
Store 2 if chronic infection of moderate degree.
Easts 3 if chronic infection of moderate degree.

day juntive - Score 1, 2 or 3 depending on severity and degree.

Sorres - Score 3 for concent whoers and bornatains.

Lets - Score 1, 2 or 5 depending on type of cateroot,

degree and efficie of depending on type of the retice

and optic nerve - Score 3 for discases of the retice

and optic nerves.

27. Dags

Search of for moreal mearing 20/20 or 100 per cent.
Score 1 for 15/40 or 50 per cent hearing.
Score 2 for 15/40 or 50 per cent hearing or less.
Score 3 for 5/20 or 85 per cent hearing or less.

External Canal

Score 1, if there is an evidence of inflammation, swelling, skin disease, or excessive amount of wax. Score 2 if there is any discharge.

Druns

boore 1 if there is a perforation of the ear drum.

Weber Test

Score I if there is a positive Weber Test in one ear. Score 2 if there is a positive Weber Test in both ears.

#### 28. Nose

Score 0 if breathing is normal. Score 1 if septum is only partially deviated to one side with slight obstruction to breathing. Score 2 if septum is deviated to the extent that it blocks the air passage on one side. Score 3 if septum is deviated and causes a total obstruction of air through the masal passages.

Sinuses
Score 1 if there is any symptom or sign of sinus infection.

29. Langs
Score 1, Acute Bronchitis. Score 2, Chronic Bronchitis, Asthma,
Pleurisy, or Emphysema. Score 3, Tuberculosis, Empyema or Hydrothorax.

## 30. Heart

Enlarged Score 3 for a marked enlargement with a heaving apex boat.

Organic Muraurs
Score 1 when slight and compensated, giving no symptoms on
exercise. Score 2 when there is a compensation with hypertrophy,
but shortness of breath on exertion. Score 3 when there are
signs of decompensation always present, such as cyanosis,
palpitation, etc.

## 31. Pulse

Score O for a pulse rate under 72 per minute. Score 1 if between 72 and 35. Score 2 if between 85 and 100 (sitting putlse rate). Score 3 is over 100. Score 1 if difference in pulse rates taken before exercise and after exercise is greater than 25.

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32. Blood Pressure

Score O if B. P. is within 10 m.m. of the norm for that age
(systolic). Score 1 if B. F. is above or below 10 m.m. but
within 15 m. m. of the norm for that age. Score 2 if B. P.
is above or below 15 m.m. but within 25 m.m. of the norm for
that age. Score 3 is B. P. is above or below 25 m.m. but
within 35 m.m. of the norm for that age.

## Hormal Average Blood Pressure

Age	High	Ago	High
21 to 25	122.76	41 to 45	126.56
26 to 30	123.65	46 to 50	130.57
31 to 35	123.7h	51 to 55	132.13
36 to 40	126.96	56 to 60	134.76

## 33. Blood Vessels

Various Voins
Score I for slight variousities of the legs.
Score 2 for marked variousities of the legs and for any form of variousities of the abdomen or chest.

- 34. Mouth Score 1 for any ulcerations, etc., in the mouth. Score 1 for halitosis of any type.
- 35. Teeth
  Score O for perfect teeth or teeth with not more than three
  fillings and no teeth missing. Score 1 for every decayed
  tooth (up to three), for loose teeth, a great amount of tartar,
  missing teeth and a great amount of dental work present.
  Score 2 for deed teeth with evidence of systemic infection,
  such as rhoumatism, nouritis, lumbago.

Visits to Dentist Score 1 if dentist has not examined teeth and given them needed attention within six months. Score 2 is over one year.

Brushing and Cleaning Teeth

Score 1 if teeth are not cleaned at least twice each day-upon arising and just before retiring.

Score 1 for a red margin on gums with bleeding.
Score 1 to 2 for receding gums with loose teeth.
Score 2 for pyorrhea without other symptoms.
Score 3 for pyorrhea with systemic symptoms, such as rheumatism,

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neuritis, etc.

- 36. Tongue Score I for ulcerations, marked coating, tremor, or inability to protrude in midline.
- 37. Pharynx Score I if there is evidence of any congestion.

Larynx
Score 1 for soute laryngitis of recent origin which is manifested by a hoarse voice. Score 2 for a chronic hoarse voice.

- 38. Stomach
  Score O to 2 for indigostion, neusca, veniting, belching, distension, etc., depending upon degree.
- 39. Bowels

  Score 2 if bowel movements are irregular.

  Score 3 if chronic constipation is present.

  Score 2 if diarrhea is present.

Abdomen
Score 3 for area of tenderness until diagnosis is made.
Score 1 to 3 after diagnosis is made depending upon the severity of the condition.

Hemorrhoid, Fissures or Fistulae
Score 2 is present.
Score 3 if the condition causes pain, bleeding or any general
nervous symptoms.

## 40. Genitelia

100

Fenis
Score 3 for any external secretion or sores, until a bacteriological examination proves negative for gonocosei, chaners
(syphilis), or chancroid. Score 2 for inability to retract
the foreskin (phimosis), or for a white cheesy mass under the
foreskin, if it can be retracted. Score 1 for any abrasions
or ulcerations not caused by veneral disease.

Score 2 for undescended or absent testicle, or any condition involving one testicle. Score 3 for any condition involving both testicles.

Score 3 for large varicocele or hydrocele which causes distension of the scrotum.

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States I for electrical testing testing trade, or impulity

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middless one on telephone to absent teation or any sential and particular and total an

Score 1 for stall varietable or hydrocele.
Score 5 for large anti-cools or hydrocele which common distances
of the descript.

- Lil. Hernia
  Score 2 for hernia supported with a truss.
  Score 3 for unsupported hernia.
- L2. Urinalysis

  Score 1 if a trace of albumin or sugar is present.

  Score 3 for persistent albumin, sugar, casts, etc., which indicate organic disease of the kidney.
- 13. Lymph Glands (Cervical, Axillary Expitrochlear, Inguinal, etc.)
  Score 2 for any glands which are painful on pulpation.

Thyroid Score 2 if thyroid is enlarged. Score 3 if symptoms of thyroid disease are present.

- Tomsile

  Score O for normal tonsils or if removed. There should be little evidence of any tonsillar tissue and the anterior pillars should be the color as the surrounding mucous membrance. Score 1 if the tonsils are enlarged and there is congestion of the anterior pillars with no evidence of local or systemic symptoms. Score 2 if the tensils are enlarged, aryptic or infected, with a history of repeated sore throats withno systemic symptoms. Score 3 if the tensils are described above have an associated history of neuritis, rhownatism, lumbage, etc.
- 45. Adencids

  Score 2 if adencids cause obstruction to breathing or show evidence of disease.
- 46. Pupils (See item 26 Eyes).
- 147. Patellar Reflex.etc.

  Score 1 to 3 for absent or increased reflexes and esk for an investigation of the cause.
- 148. Rhomborg's Sign
  Score 3 for a positive sign and ask for an investigation of
  the cause.
- 19. Tremors

  Score 1 to 3 for any form of muscular tremors and ask for an investigation of the cause.
- 50. Gait
  Score 5 for any abnormal gait due to pathlogy in the nervous system and ask for an investigation of the cause.

- Leave I for herococke administration with a Greek
- ACT Extratrets

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  Close 5 for president alreads, augus, races, which the

  dicate organia discome of the hidney.
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    - io. Pupile (See than 26 Myss).
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      - to coldestravel no tel das has eat the entrice of the entrice of
    - to the settent to any tors of manufact bremore and ask for an investigation of the cases.
    - SO. Getty
      Moore 5 the any almount gett due to pathlogy in the norweak
      agutie and ank for an investigation of the causes

Spesch Score 3 for speech defects caused by disease of the nervous system. Score 1 for speech defects caused by machanical factors, e. g., hare lip, cleft palate, etc.

Score I for apout defects enued by discase of the pervous appropriation is not a sector deal include, as the best product of the branch persons described by sector deal include, as as the best lightly of the product of the branch of the branch of the best persons of

Hyde Park Department

CHICAGO Y. M. C. A.

## Basis of Grading

## Realth Examinations

#### Classification: Men and Boys

## Class A. 90-100 points--Excellent.

1. Posture -- very good.

Musculature -- Good tone, well developed, not necessarily large or strong.

3. Weight-Normal (Considering musculature and bones).

4. Chest Expansion above two inches.

Nutrition-Excellent. 5.

6. Eyes -- Hormal or properly corrected.

7. Health Habits -- very good.

- a. Sleep eight hours or according to age in the case of boys.
- b. Tooth-wisit dentist every six months; brush teeth twice each day at least.

Balanced diet.

d. Well-ventilated bedroom.

e. Three baths per week at least.

f. Regular exercise, preferable in a symmasim class at least twice each week or cutdoor exercise.

Megular stools. h. Community Health.

(1) Expectorating.

(2) Coughing and sneezing.

(3) Street and gymnasium clothing.

i. Mealth.

Boading. Meart and vessels, nose, throat, tonsils, genitalia, feet,

apine, etc. -Normal. 9. Urinalysis -- Negative.

Annual Health Examination. 10.

## Class B. 80-90 points-Good.

1. Posture-Fair.

Masculature: Good tone, fair development.

Weight-Normal, considering variations.

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Classifications How wood Para

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Watchtown . I wond to the variations . I wond - I will be to the	

Chest expansion 1-1/2 inches or above.

Mutrition-Good.

6. Eyes-Feir.

Health Habits-Fair. (Undescended testicles, phimosis.) Similar to Class A.

Heart and vessels, ste .- Fair condition (See Class A.) 8.

Urinalysis -- Slight amount of sugar or albumon permissible. 9.

#### Class C. 70-79 points -- Poor.

Posture--Poor.

2.

Musculature--Poor tone, poor development. Weight--Underweight, 20 lbs. or less below normal; over-3. weight, 20 lbs. or more above normal.

Lin Chest expansion-1-1/2 inches or less.

5. Nutrition-Poor.

Personal Malaring

Byes -- Poor and uncorrected. 6.

Bealth habits -- Poor. Sleep, teeth, diet, fresh air, 7. bathing, exercise, etc. (See Class A.)

Reart murmurs, vessels pulsations, infected tonsils, 8. adencids, masal obstructions which prevent proper breathing, painful arches, discharging ears, varicoccle.

- Chart expended lel's toches or charte
  - . Dood--outstabill
    - O. Eyes-date
- 7. Soulth Subing-Sairs (Someoconded testicles, phinosis.)
  - d. Heart and vessels, chemistry condition (See Class A.)
- indications comments to regard to detect of the contract of

#### Class C. 70-79 points-Poor.

- \*Toolwebsolos a
- E. Mossolstere-Poor tone; poor development.
- -reverse and the self of the self of the below normals orer-
  - . Close organization ... Thehad or loca.
    - was of Lauren to Ladelle .
  - L. lighter and monty or bod.
  - 7. Harling americal atoms agoods areas areas all bathing american often (See Class S.)
- 0. Heart momers, veneta polantime, infected tonails, administration of the proper breakling, painted archery discharging terms variescele.

# Medical Exquination Forms Used at Posse School of Physical Education

## THE MEDICAL MISTORY

None	Date
Class	
Family History:	
Family Age if living H	ealth Age at death Cause
Pather	
Nother	
Brothers	
Sisters	
Family history of pulmonary, c	irculatory, or kidney disease,
syphilis, diabetes, or cancer:	
6-611	
Personal History:	
How many hours do you sleep?	Sleep well?
De you use tobecco?	How much per day?
How many cups of tea or coffee	per day?
Check the following discuses y	ou have had and state at what age:
Meaps	Infantile Parelysis
Measles	Smallpox
Whooping Cough	Otitis Media
German Moneles	Bronchitis
Chicken-Pox	Procesonia

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Diphthoria	Tuberoulesis
Scarlet Fever	Fyelitis
Tonsilitis	Asthma
Chorca	Hay Fovor
Acute Rhousatic Vever	Hivos
Typhoid	Sozons
Other illnesses	
Operations	
Accidents	
Present Modical History:  Are your appetite and digestion	good?
Subject to constipation?	
Diamina?	Remorrhoids?
Frequent colds?	Sore throats?
Cough?	Vertige?
Headaches?	
Do you faint? Why?	
Emotional disturbances?	
Subject to nervousness?	
Kidney trouble?	Bladder trouble?

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#### PHYSICAL EXAMINATION

Name		Age
Height	Weight	Weight norm
Maximum weight		Vhon
Recent gain?		Recent loss
Cause?		Vital capacity
Posture and Feet:	December 1	
Posture standing		Kyphosis
Lordosis		Scoliosis
Shoulders, right		left
Posture picture		
Longitudinal arch		Transverse arch
Pronetion	an arms to any her alms to receive about the second state of the s	Pain in feet
Pain in back of logs_		Knock-knee
Bowlego		Clausges
Hammer-toe		Hallux valgus
Own-riding toes		Corns
Athlete's feet		Swollen joints
Shoos, correct or inco	rrect	
SURMARY:	Trail	

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#### MEDICAL EXAMINATION

Name	Class	Date
Eyes:		
Distant vision: Right		Left
Near vision: Right		left
Field of vision		Nuscle balence
Pupils		Reaction to 1. & d.
Classos		Last fitted
Conjunctiva		Eyelids
Astignatism		Other trouble
Bers:		
Hearing: Right		Left
Canal: Right		left
Drums: Right		Loft
History of ear trouble_		
Nose and Throat:		
Septua		Sinuses
Pharynx		Larynx
Tonsils removed		Tage
Enlarged		Burled
Cryptic		Contain pus
History of throat troub	le	
Adenoids		Frequent colds

#### BUTTA CUARSE DISTURBE

	Class	Date
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Glands	Catarrh			
Asthma	Hay Fever			
Breath				
Teeth:	Guras:			
Carlous	Receding			
Fillings	Bleeding			
Roots	Infected			
Capped or crowned	Anemio			
Missing	Tongue:			
Partar	X-rayed when			
Conclusion	X-ray diagnosis			
	X-ray advised			
Chart of the Teeth				
*** *** *** *** *** *** *** *** *** **				
Circulatory System:				
Mistory of circulatory disease				
Арох				
Enlargement: None Slight				
Apex sounds: Clear Muffled				
	AND			
Muraure				
Pulse: Sitting after quiet period After exercise				
60 seconds after exercise	90 seconds			

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Pulse regularity	Quality
Blood pressure: Systolic	
Fulse pressure	
Hemoglobin	
Daniel and any Combana	
Respiratory System:	
Shape of chest: Normal Pi	
Inspection	
Palpitation. Fromitus: Normal	Absort Decreased Increased
Percussion. Resonances: Normal	Diminished Dull
Flat	Hyperresonant
Auscultation. Broath sounds:	Normal Absent Distant
Bronchovesicular Bronch!	al Amphoric Rales
Location of abnormal sounds	
History of respiratory disease	
Abdomen:	
Shape: Mormal Scaphoid	Protruding Pendulous
Tenderness	Location
Idvor	Spleen
Stomach	Appendix
Hornia	
History of abdominal disease	
Operations	

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Brain and Mervous System:		
Patellar reflex: Normal	Absent	Increased
Tromors	Gait	
Speech	Rhomberg sign	
History of nervousness		
Mistory of psychoses		
Endocrine System:		
Thyroid		
Basal motabolism		
Other signs of endocrine troub	le	
Skin Lammhotics Voings		
Skin, Lymphetics, Veins:		
Color		
	Dry	
Color	Dry	
Color	Dry	
Warts Aone Other disorders	Dry	
Color	Dry	
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#### Rectum

Hemorrhoids	Fissures								
Fistula	Bleeding								
Menses: Ago of establishment of menses_									
Regularity	No. of days								
Amount of flow	Pain								
Out of classes	In bed								

# THE POSSE SCORE SHEET

### 1. The Family History

The Family History is not scored, inasmuch as defects which found are scored under the medical examination proper.

### 2. The Personal History

Past Diseases:

Defects remaining from previous discases are scored under the medical examination proper.

Hygienic Habits:

Poor hygienic habits are scored according to the effect on physical fitness.

Sleep. Score & to 1 depending on effect.

Tobacco. Score 1 if any effect.

Tea, Coffee. Score & to 1 is used in excess.

Indigostion. Score & to 1 depending on severity.

Constipation. Score & to 1 depending on symptoms.

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Vaccination:

Veccination, having no effect on physical fitness, is not secred.

# 3. The Physical Examination

Age, Height, Weight:

For finding the normal weight for age and height, use the Age, Height, Weight Tables for Women, compiled by the Association of Life Insurance Directors and the Actuarial Society of America.

The scoring tables follow:

			Weight		Medium Weight								
0	equals	5%	below	normal	0	equals	5%	from	normal				
1	equals	10%	below	mormal	1	equals	10%	from	normal				
2	equals	15%	below	normal	2	equals	15%	from	normal				
3	equals	20%	below	normal	3	equals	50%	from	normal				

Heavy Weight
O equals 10% above normal
2 equals 15% above normal
3 equals 20% above normal
4 equals 25% above normal

Musculature: Score 1 to 2.

Vital capacity: Scored uner the PFI test.

Posture:

Use the Harvard Posture Charts and the angle measurement norms of Coldtimmaite in judging posture. Score posture only if very poor, or if there are symptoms of fatigue, eye strain, muscular strain, or pressure on internal organs. Score & to 1.

Kyphosis, lordosis, scoliosis:

Score organic types 1 to 5, depending on the severity of the

Auto-Education and

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For Placing the reseal weight for age and height, use the Age, Seight, Weight Tesles for Women, compiled by the Association office and the Association of the Associate of the Associate Associate of the Associate and the Associat

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december of the first property of the severity of the

condition, symptoms and amount of regidity.

Bowlege, knock-knees: Score & if marked degree.

Poot:

Consider the foot condition as a while. The scoring depends on the amount of pain, rigidity, and debility. Score 1 to 3.

# h. The Medical Examination

Eyes: A the second of the bearing

Vision, distant. Score & to 1 depending on degree. Vision, near. Score & to 1.

Astignatism. Score & to 1 depending on degree.

Other eye conditions. Scored according to the cause.

Score 2 to 5.

Ears:

Hearing. Score & to 1.

Nose, Throat, Wouth:

Deviated septum. Score à to 1.

Pharynx. Scoro & for congestion or catarrhal condition.

Larynx. Score & to 1 for husky veice.

Tensils. Score 2 to 5 depending on symptoms.

Adenoids, Score 1 to 2.

Sinuses. Score 1 to 3, depending on symptoms.

Teeth. Score 1 to 5, depending on local condition and general symptoms.

Tartar. Score ::

Gums. Score 1 to 5 depending on local conditions and general symptoms.

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Brouth. Score ato 1, depending on cause.

Bay Fever. Score & to 1, depending on severity.

# The Circulatory System:

Pulse. Rapid pulse of over 80 is score 1 to 3, depending on rate and cause. If due to organic heart disease,
it is scored under the heart.

Pulso-exercise reaction. If pulse does not return to normal within two minutes, score 1 to 3, or under heart as above.

Blood pressure. Use the following chart in figuring normal blood pressure.

Age	Systolio	Diastolio	Pulso	Pressure
20	120	79		41
30	122	81		41
40	129	83		12
50	129	85		2,4
60	134	87	•	1.7
All ages	121	81		1.3

Pulse-pressure. If ever 50 add 1 to blood pressure score.

Punctional heart. Score 1 to 2 depending on symptoms and cause.

Organic heart. Score from 5 even to 100, depending on severity of pathology and symptoms of decomposition.

The Respiratory System:

Cough. Score under condition causing the same.

Chronic Bronchitis. Score 1 to 3. depending on severity.

Asthma. Score 1 to 3 depending on severity.

Sensor Done had by depending an ensure.

Lay Favor. Sours & to L. depositing on severity.

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Follow Facility valor of over 10 is sonry 1 to 5; depend-

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Miles-promines. If ever 50 and 1 to bless present energy.
Provident hours, Spore I to 2 depending on apoptone.
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Cough, Some under soutisten monator, the miss.

Threshie Ministries Start I to 5, depositing on sovering.

Authors. Start I to 5 deposition on severity.

Pleurisy, recurrent. Score heavily as this condition is ordinarily tuberculous.

Tuberculosis.

Active-Score these four items heavily, even to 100.

Quiescent-The scoring depends on the extent of the

Arrested-pathology and the effect on physical fitness.

Phosis of organs. Seere ; to 1.

Abdomen. Foor abdominal support. Score g to 1.

Liver and spleen. The score depends on the diagnosis.

As pathology in these organs is serious, score heavily.

Tenderness. Score 1 to 5 depending on cause.

### The Mervous System:

Patellar reflex increased. If due to general condition and not to disease of the nervous system, score 1 to 3.

Tremers. These are all symptoms of pathology in the Rhomberg central nervous system. Score from 5 up, Sign. Speech. depending on the severity of the symptoms and Gait. amount of pathology.

Reflexes.

The Endocrine System:

Adolescent Thyroid. Score 1 to 5, depending on symptoms. Thyroid, organic. Score 2 to 5, depending on type and symptoms.

Skin conditions, as some. Score 1 to 5.

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Enlarged glands. Score under underlying condition.
Kidneys, Bladder:

Orthostatic albuminaria. Score as part of the postural condition which causes it.

Organic kidney trouble. Score from 5 to 100, depending on the pathology and its effect on the physical fitness.

Rectum:

Hemorrhoids, fissures, fistula, and bleeding are scored

1 to 3, depending on the diagnosis, amount of pain and
bleeding, and degree of nervous irritability.

Menses: Score 1 to 3, depending on the severity of the
symptoms.

General Condition and Endurance: Secre 1 to 5, depending on amount, if no cause can be found for the same.

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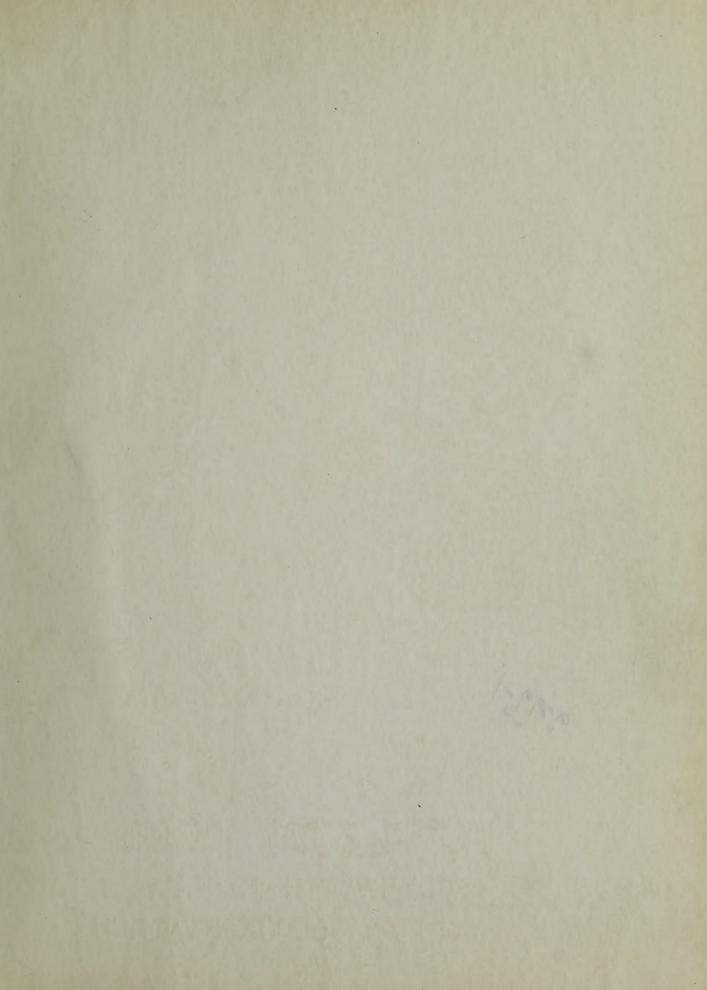
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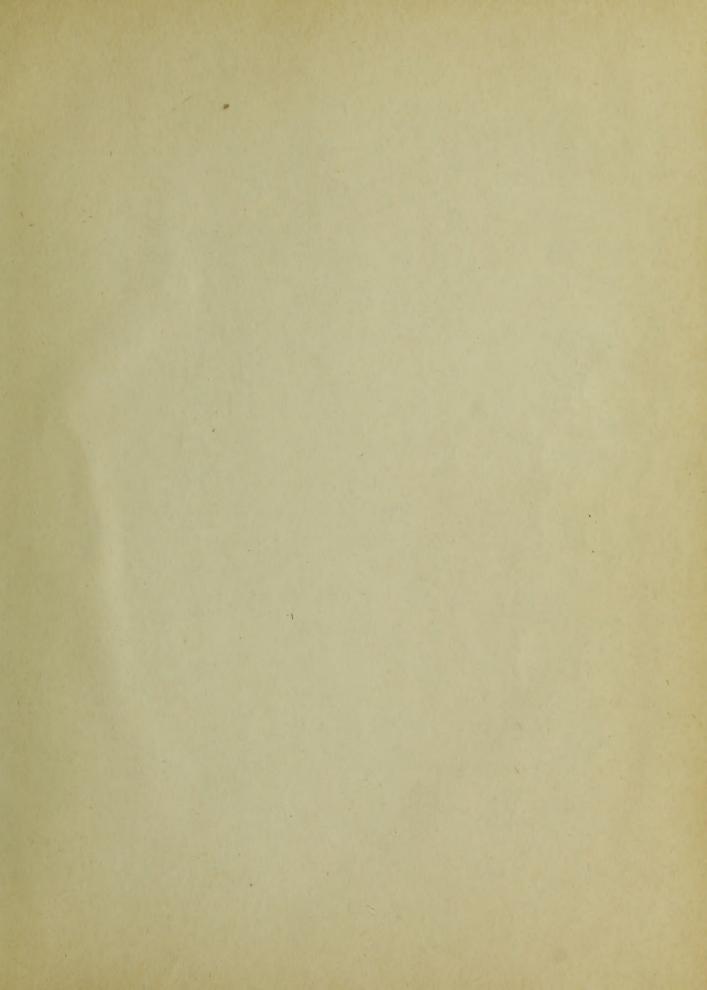
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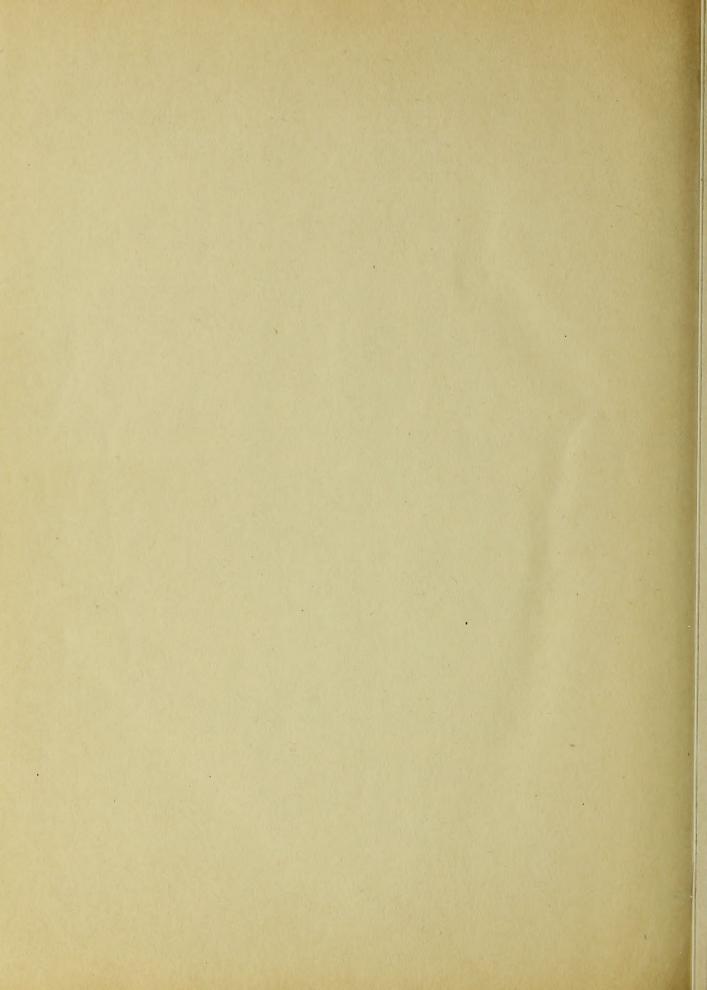
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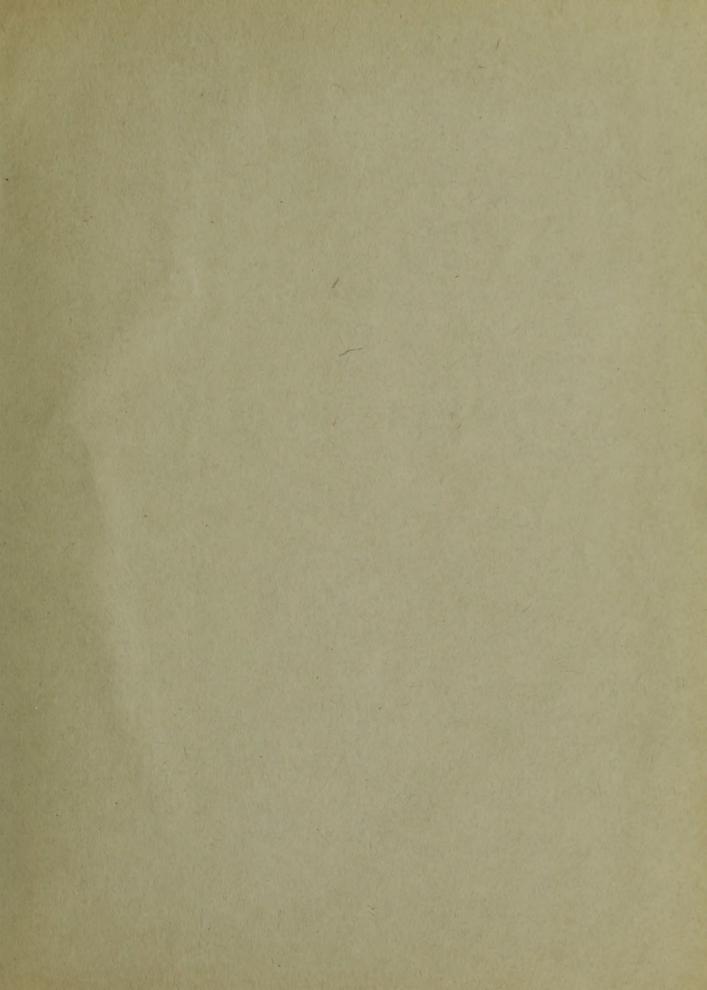
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